NOT TO BE TAKEN AWAY

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COLI INFECTION OF THE URINARY TRACT IN INFANCY AND CHILDHOOD.*

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IT is to Escherich of Vienna that we are indebted for having been the first to call our attention to the frequent occurrence of coli infection of the urinary tract in infants and young children. The publication of his monograph in 1894 was quickly followed by others from Finkelstein, Göppert and Trump, whose investigations confirmed his observations, and led to the establishment and general recognition in children of the conditions known as coli cystitis and coli pyelitis. Many other organisms—staphylococci, streptococci, gonococci, and the bacilli of diphtheria, typhoid and tuberculosis—may occasionally be the exciting cause, but, as Escherich pointed out, the *Bacillus coli* is by far the most frequent, and in his own series of cases 58 out of 60 were found to be due to this organism. His findings in this respect have been confirmed by later writers. Jeffreys in a recent publication reports 121 cases, of which 67 were coli, 37 staphylococcic, 10 streptococcic, 3 pneumococcic and 4 miscellaneous.

Its occurrence among infants has been more recently emphasised

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by Thompson and other writers. At this early age it is extremely likely to be overlooked owing to the difficulty of obtaining specimens of urine for examination; and as a consequence, after a prolonged and wasting illness of many weeks' or months' duration, the cause of death is ultimately certified as being due to marasmus or tuberculosis.

The path by which the *Bacillus coli* may gain an entry into the urinary tract has been the subject of keen controversy. Birk believes that a co-existing tuberculosis and the so-called exudative diathesis are predisposing factors, and Friedenwald has published 80 cases of which 59 had preceding gastro-intestinal disturbances.

The fact that from 90 to 95 per cent. of the cases occur in girls at once suggests that direct infection of the urethra by rectal contamination, with a consequent ascending infection, occurs in a preponderance of cases. The short urethra in the female and the baneful habit of wiping with the diaper from behind forwards, renders infection by this route easy. Box also has demonstrated the *Bacillus coli* to be present in the urine of children suffering from thread-worms, the ova themselves being found in the bladder. The ascending route, especially in girls, has received support from most writers; in boys, however, it is rare, but it has been noted by Morse to occur after circumcision. This mode of infection has been opposed on the ground that in many of the cases the pelvis of the kidney is alone affected, the bladder and ureter remaining healthy, but even in these cases it is possible that the organisms may ascend the lymphatics outside the ureter, or, as Leutscher has shown, they may ascend through the bladder and ureter without producing any inflammation in those channels.

A second route by which the organisms may gain an entry is by their direct passage from the bowel to the kidney or from inflamed pelvic organs to the bladder or ureters. The right kidney, owing to its close relation with the colon, is especially liable to become infected in this manner. This route has been experimentally demonstrated by Wredin, and Franke has shown that in rabbits the ascending colon and cæcum are connected with the right kidney by a chain of lymphatics, whereas none are found to be connected with the left kidney. In order that infection may occur by this trans-parietal route the intestinal epithelium must have been destroyed either by disease or by artificial means, so that the organisms may pass from its walls into the surrounding tissues and lymphatics. Escherich believed this mode of infection to be the rule in the rare cases in which boys are infected, and in the three cases which I have seen

it followed acute ileo-colitis, chronic tuberculous peritonitis with intestinal ulceration and long-continued constipation respectively.

The third and last theory as to the method of infection is, that the organisms are carried by the blood-stream directly to the kidney with a consequent descending infection. In 1889, Albarran, and in 1896 Macaigne described a hæmic infection of the kidneys with *B. coli* causing a parenchymatous nephritis and multiple miliary abscesses. Posner and Lewin have proved experimentally the possibility of a hæmatogenous infection, but in children its occurrence must be considered rare, as examination of the blood by Escherich and Wunscheim was almost always negative. In such cases the organisms probably get into the blood-stream through a breach of surface of the alimentary canal such as is frequently met with in acute inflammations of the intestine and in tuberculous ulceration.

Clinically as a result of infection we are able to recognise four distinct conditions: First, simple bacilluria in which the urine is acid, clear or faintly opalescent, and may or may not have the characteristic fishy odour. On standing, a mucous cloud will form, in the meshes of which the bacilli will be found. Secondly, cystitis in which the urine is acid and opalescent, and on microscopical examination it is found to contain numerous motile organisms and pus-cells. The symptoms we should expect to find are increased frequency of micturition, dysuria and a slight rise of temperature, but no severe constitutional disturbance. Thirdly, pyelitis, in which the constitutional disturbance is much greater, with often a high remittent type of temperature: the attack may be ushered in with shivering or rigor and there are many pus-cells and motile organisms in the urine. Lastly, we may have a pyelo-nephritis in which the general symptoms are very severe, wasting is pronounced, and in addition to pus-cells there are tube-casts and albumin in the urine.

In the twenty-three cases upon which this paper is based the protean character of the symptoms is one of the most striking features. In infancy the onset is usually sudden, but on careful inquiry it is not infrequently found that for some days previously there has been an increased frequency of micturition with an offensive odour of the urine, and possibly signs of irritation round the vulva and meatus. The onset of acute symptoms is often marked by shivering or a distinct rigor, after which the temperature rises rapidly to 104° or 105° F.; it then assumes a remittent type, resembling enteric fever or acute general tuberculosis. This remittent character may be

maintained for weeks, or there may be intervals in which the temperature is normal, alternating with severe relapses.

Shivering is a very important sign, and when present should always suggest the possibility of pyelitis, as it is exceedingly rarely met with in infancy except in this condition. The general disturbance and distress are considerable; the baby rapidly loses weight, and is restless, very fretful and tender to touch.

Squint, head-retraction, drowsiness and vomiting may be present, producing a clinical picture closely simulating, and difficult to diagnose from, meningitis. Local symptoms—and here is one of the chief difficulties of diagnosis—may be absent altogether, or so slight as to escape recognition. There may be an increased frequency of micturition, with dysuria, occasional colicky pain, and in some cases tenderness on palpation over one or other loin—a sign exceedingly difficult to determine owing to the infant's general fretfulness and sensitiveness.

The urine on inspection will be found to be opalescent or turbid, and when shaken it shows a mucous sheen. It has a peculiar and unpleasant fishy odour, an acid reaction, and on standing deposits a sediment consisting of pus and epithelial cells from the urinary tract. The turbidity is not removed by acids, nor does it disappear on boiling, and on microscopical examination there are seen, in addition to the pus and epithelial cells, large numbers of motile bacilli.

Thomson has noted that when the temperature first rises pus is not always found in the urine, but it usually appears in a few days; further, it may disappear entirely for a day or two and then reappear, which Göppert suggests is due to only one ureter being affected, and to its having been temporarily blocked while the other remains patent.

In three of my cases occurring in infants general œdema was a marked symptom, and, indeed, in older children puffiness and swelling about the eyelids is not an uncommon sign. Alice McK—, aged 18 months, is a good example of this type. She was admitted to hospital on July the 16th, 1912, with a history of having been feverish and drowsy and losing weight for three weeks. A week before admission the face, arms and legs began to swell, but there were no local symptoms pointing to bladder trouble. She weighed 14 lbs. 13 ozs., and looked ill and wasted. The temperature was 100° F., pulse 126 and respirations 26, and there was considerable œdema of the face, trunk and extremities. The urine was offensive, turbid and acid: on centrifugalisation it contained no casts, but

large numbers of pus-cells and motile organisms. Cultures were made and a pure growth of *B. coli* obtained.

Another case in which there was general œdema was that of Eliz. D––, aged 8 months, but here the swelling had been noticed for two months before admission. There was in addition a history of wasting and the frequent passage of turbid and offensive urine. On admission she was pale and fretful, and in addition to general œdema there were patches of erythema on the trunk and limbs. The urine was turbid, contained a trace of albumin but no casts, and large numbers of pus-cells and motile organisms were found, which on culture proved to be *B. coli*.

In older children the disease may be acute or chronic: in the former either the constitutional or the local symptoms will predominate, depending on whether we are dealing with a pyelitis or a cystitis. In the chronic type it is not unusual for the local signs to be utterly insignificant, and the constitutional symptoms may also for a long period remain latent.

Attacks in which the constitutional symptoms predominate commence, as in infancy, with shivering, restlessness, high fever, anorexia, headache and vomiting. The skin is hot and dry, the pulse rapid, respirations increased, herpes may appear on the lips, the abdomen be slightly distended, and even the spleen enlarged. Nervous manifestations are sometimes marked, and produce a symptom-complex which may closely simulate cerebro-spinal meningitis. They take the form of extreme restlessness, irritability, decubitus in crouched-up attitude, head-retraction, muscular twitchings, hypertonus and delirium. The temperature may remain high, 103° to 105° F., for several days, and then abruptly terminate, or considerable oscillations of temperature may be present.

Acute infections in which local symptoms are present are much easier diagnosed: these patients as a rule suffer from increased frequency of micturition, dysuria and incontinence; signs of inflammatory irritation are also often present round the meatus and vulva. Pain may be so severe as to cause the child to scream during micturition, there may be tenderness over the bladder or kidney, and in some cases distinct enlargement of the kidney may be felt. In other cases pain referred to the subcostal and epigastric regions may be complained of, and there may be slight rigidity of the abdominal muscles (Box).

Lastly there are the chronic and persistent infections which are occasionally seen in infants, but more frequently in older children. In these there is usually a persistent bacilluria with but slight signs

of inflammatory reaction of the bladder, ureter, or pelvis, and there is little or no constitutional disturbance. Nocturnal incontinence of urine is not infrequently met with, and in many girls in whom this troublesome condition has lasted for months or even years a microscopical examination of the urine will show a colon infection to be the exciting cause.

Children suffering from this chronic variety are generally poorly nourished, anæmic and flabby; they suffer from general malaise and may have a slight elevation of temperature, which persists over a long period. Shivering or rigors are rarely present, nor is there any complaint of local tenderness or pain. Periodical exacerbations are apt to occur, and may assume the form of bilious attacks with persistent vomiting very similar to the cyclical vomiting of acetonæmia, or there may be joint pains with dulness and apathy closely simulating rheumatism. Box has reported a chronic case which ultimately passed into a condition of uræmia; the post-mortem examination showed the right kidney shrunken and its pelvis dilated; the left kidney was swollen, mottled, coarsely granular and partly hydronephrotic. The ureters were dilated and thickened, and the bladder hypertrophied from chronic cystitis; there was no obstruction in the urinary passages.

In two of my cases skin eruptions were the most prominent manifestations; in one, Barbara B—, aged 3½ years, there was a six months' history of frequent outbreaks of "spots" over the trunk and limbs at intervals of a few weeks; some of these were urticarial in character, and others, especially on the hands and feet, formed blebs like pemphigus. She had no local symptoms pointing to the urinary tract, but the urine was acid and contained pus-cells and motile organisms, which on culture proved to be *B. coli*. The urine was rendered alkaline with citrate of potash, after which she made a quick recovery, the rash entirely disappearing, and up to the present time (four months) there has been no recurrence.

Another case worthy of special mention was that of Sheila S—, aged 2 years and 11 months, who was taken suddenly ill with chill, high temperature, drowsiness and slight delirium. Four days later the urine was found to contain albumin and sugar in large quantities; there were no casts, but crowds of motile organisms, which upon investigation proved to be *B. coli*. Under full doses of citrate of potash the temperature rapidly became normal, the sugar and albumin disappeared, and in less than three weeks cultures made from the urine were negative.

The diagnosis of these infections depends entirely upon a careful

microscopical and bacteriological examination of the urine in patients with the symptoms above described, care being taken at the same time to exclude disease in other organs sufficient to account for the symptoms. The characteristics of the urine in the acute cases have already been described, but in those of a persistent and chronic type the diagnosis is sometimes far from easy. The urine is acid, odourless, and looks perfectly normal, but on standing a mucous cloud deposits, in the meshes of which, after centrifugalisation, pus-cells and organisms will be found.

With regard to agglutination reactions and opsonic index determinations, Dudgeon has shown that although the opsonic and phagocytic indices are low they are not reliable, and that the agglutination test is of no value. Pfaundler, on the other hand, has demonstrated that a bouillon culture of bacilli grown from urine and mixed with the blood-serum of the same patient will produce agglutination even when highly diluted.

When the symptoms are wholly constitutional the true nature of the complaint is very likely to be overlooked; if the onset is sudden it may suggest the presence of an infective fever, pneumonia, meningitis, or otitis media. Meningitis is frequently diagnosed in cases with marked cerebral irritation; and, indeed, the nervous symptoms in an acute pyelitis may so closely simulate it as to require an examination of the cerebro-spinal fluid before that disease can be finally excluded.

In chronic cases, in which there is continued malnutrition associated with slight febrile disturbance, and no local signs or symptoms, a suspicion of a tuberculous focus is sure to arise, and in such cases an examination of the centrifugalised urine for pus-cells and organisms should never be omitted. When local symptoms are prominent, with the presence of pus in an acid urine, bacteriological examination will demonstrate the tubercle bacillus if tuberculous disease of the kidney or bladder is present, and calculus can be excluded by an X-ray examination.

Prognosis.—The course of the disease is very variable: the acute symptoms are usually over in a few days or weeks, but a considerable number of cases become chronic, and with periodic exacerbations may last for months, or even years. Birk reports one child who had such recurrences five times in ten years, the last occurring at the age of 12. The ultimate outlook of most cases is favourable; but the rapidity of the cure depends largely upon an early diagnosis and whether the physician, before pronouncing the patient cured, requires that the urine should not only show an absence of organisms

and pus-cells, but should also be culturally free from the colon bacillus.

In 40 cases occurring in infancy reported by Still, only 3 were fatal; out of Thomson's 25 cases, 21 recovered, 3 died from the disease spreading to the kidney and 1 of abdominal tuberculosis. Jeffreys reports 37 cases from Great Ormond Street, of which only 11 were discharged cured, and 6 died—3 of the illness, and 3 of other illnesses, of which the coli infection was a complication. Göppert had 10 deaths in 84 cases, and Ramsey has reported 25 cases, of which none died. Of my 23 cases, 12 were discharged cured, 5 greatly improved, and 3 are still under treatment and improving. Three have died—1 of acute ileo-colitis, 1 of broncho-pneumonia, and 1 of tuberculous meningitis.

Pathologically two types of the disease may be distinguished, the one showing simply a catarrhal condition of the bladder, ureter and pelvis of the kidney, and the other showing multiple abscesses in the cortex of the kidney. Very few autopsies have been made owing to the condition being so rarely fatal, and in none of my fatal cases could we obtain permission for a post-mortem examination. John Thomson has reported in detail the post-mortem findings in two cases occurring in infants. In one the kidney was enlarged and the surface studded with collections of pyæmic foci surrounded by a hyperæmic zone; on section the pyramids were intensely engorged and showed radiating lines of suppuration. In the other, in addition to extensive changes in the kidney substance of a similar type the ureters were dilated.

Apparently no permanent damage occurs in the kidneys of patients who are cured. Friedenwald reports one case in which death occurred from tuberculosis seven weeks after the patient had been cured of pyelitis, and post-mortem examination could discover no lesions in the urinary tract.

Treatment.—Many acute cases get well spontaneously, and many chronic cases resist every means of treatment that may be adopted. According to John Thomson the main indications are two—first, to ensure a copious secretion of urine by the free exhibition of fluids, and secondly, to render the urine alkaline as quickly as possible and keep it so for some weeks. The reason for this is that colon bacilli develop less easily, and phagocytosis is more active in an alkaline medium. The best drug for this purpose is the citrate of potash, which must be given in doses varying from 5 to 20 gr. every three or four hours. The smallest dose Thomson has found effective is 24 gr. in twenty-four hours, but 120, 150, or even 180 gr. may be

necessary. The urine generally becomes alkaline in one to three days, after which, as a rule, the temperature quickly falls, the symptoms subside, and the pus-cells and organisms rapidly diminish in number. If digestion is disturbed or diarrhœa set up by the citrate of potash, Still points out that the alkalinity may be maintained by 5 to 10 gr. of bicarbonate of sodium or potassium given every two or three hours. I have found citrate of soda added to the infant's bottle equally valuable under these circumstances.

Baby R—, aged 15 months, a typical case of coli pyelitis, illustrates the value of this method of treatment. On December the 25th, 1912, she was taken suddenly ill with shivering, restlessness, and high temperature, which during the next six days ranged between 101° and 104°F. When seen on the 31st she looked pale and ill, was losing weight rapidly, the face was puffy, and the temperature 103·2° F. Examination of the lungs and abdomen was negative, but the urine was found to be thickly turbid and to contain numerous pus-cells and motile organisms. She was put on 5 gr. of citrate of potash every three hours; the urine became alkaline in forty-eight hours, after which the symptoms quickly subsided and the temperature became normal. By January the 16th she had gained 1 lb. in weight, the temperature was continuously normal, and the urine, which was clear and alkaline, only contained an occasional pus-cell after centrifugalisation. Since then she has continued to make an uninterrupted recovery.

Kitty F—, aged 6 years, a similar case occurring in an older child, was noticed in November, 1912, to be passing urine frequently and to be restless at night. Three weeks later a febrile attack was ushered in with a chill, rapid respiration, and general malaise; the urine contained much pus and motile organisms. When seen on December the 19th the acute symptoms had subsided, but the urine still contained many pus-cells and organisms. She was given 15 gr. of citrate of potash every three hours, and by January the 8th the urine, which was alkaline, was found to contain no pus-cells or organisms even after prolonged centrifugalisation. Cultures from the urine have been made on several occasions during the past few months, and the result has always been negative.

Betz is directly opposed to this method of treatment and believes that the colon bacillus is unable to proliferate in very acid concentrated urine. He therefore advocates phosphoric acid and a meat and no vegetable diet in order to make the urine strongly acid, limits the amount of fluid given, and in addition prescribes hot-air baths to encourage a concentrated urine.

My experience with urinary antiseptics has not been satisfactory: in acute cases they have not been of much value, and in chronic ones they have been useless. Urotropin and helmitol are the drugs I have employed, but I have usually combined them with a sodium salt, which may account for my lack of success. It is important to bear in mind that the action of urotropin and its allies depends upon their being broken up in the body and excreted as formaldehyde. Sisson has recently shown that the excretion of formaldehyde only occurs in an acid urine, and therefore to gain good results from urotropin it is essential that the urine should be first rendered acid with phosphoric acid or sodium acid phosphate. Box believes that urotropin has very little influence on *B. coli*, and Dudgeon asserts that if a patient suffering with pyelitis is benefited by its use *B. coli* is not the infecting organism.

Autogenous vaccines I have employed in six cases, but in every case they have been given in addition to alkalies, and they have not appeared to yield better results than in those treated by alkalies alone. In chronic cases in which alkalies have failed they have, in my experience, proved of no value: they do not prevent exacerbations, nor do they cause a diminution of pus-cells or organisms in the urine.

Williams, Murray and Wallace have reported cases in which they gave relief to symptoms, and Lyman believes they are of great value, but admits that many cases do not improve more quickly than others without. H. D. Rolleston also reports favourably of them, and Dick believes that cases which do not respond to alkaline treatment are sometimes benefited by their use.

Of serum therapy I have had no experience, but Box and Dudgeon have given anti *Bacillus coli* serum a fair trial but with no permanent improvement. They report, however, that by washing out the bladder with the serum they obtained a marked temporary diminution in the number of bacilli.

Conclusions.—(1) Pyelitis and cystitis are much more common in infancy and early childhood than is generally supposed. Mysterious febrile attacks, especially in females, should therefore not be attributed to dentition or gastro-intestinal indigestion until a careful examination of the urine for pus-cells and organisms has been made.

(2) The infection may be an ascending one owing to direct infection with fæces through the urethra, or it may be a descending one owing to the direct passage of the organisms from the bowel to the kidney, or lastly, and in rare cases, the infection may be carried by the blood-stream.

(3) The most satisfactory treatment is that by alkalies. In cases which do not respond to this method, urinary antiseptics, after first rendering the urine acid, or autogenous vaccines should be tried.

(4) In spite of all treatment many cases become chronic; in these acute exacerbations alternate with long periods of quiescence, but the urine never becomes entirely free from pus-cells and organisms.

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REMARKS ON SOME FATAL CASES OF ECZEMA IN CHILDREN.*

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This little paper is offered to the Section for the Study of Disease in Children, not because it professes to throw any particular light on the subject dealt with, nor because it embodies any research worthy of the name, but because it deals with what is, I believe, rather a rare occurrence, and because I hope it may elicit from the learned medical men gathered here to-day some light on catastrophes which have puzzled me personally very much.

* A paper read at the Provincial Meeting of the Section for the Study of Disease in Children of the Royal Society of Medicine, at Northampton, on June the 21st, 1913.

I have been a physician to the Northampton General Hospital for the last twelve years, and I find on looking through my notes of the cases treated in the children's ward that I have admitted and treated in that ward 28 cases of eczema, and that no less than 6 of them have ended fatally.

Such a proportion of unfortunate results may be regarded as particularly unlucky or particularly fortunate and interesting according to the light in which they are taken, but at any rate they distressed me very much at the time, and I could see no adequate reason for their occurrence.

It may be well, therefore, to give in very brief detail the five fatal cases on which I have notes. The notes of the sixth have unfortunately been lost.

(1) F. C—, male, aged 7 months, admitted May the 8th, 1904, with chronic moist eczema of the head and face; had had eczema since he was fourteen days old. Treated with lotio plumbi and unguentum plumbi carbonatis.

Began to seem very ill on May the 9th, and died on May the 11th, with temperature rising to 103° F.

(2) M. B—, female, aged 6 months. Admitted October the 22nd, 1904; she had had eczema for the last five months. It began behind the ears and then spread acutely on to the head and face. It is also present on the nates.

On the second day after admission the temperature rose to 104° F. and then rapidly fell to normal. The patient was treated with liquor plumbi subacetatis diluti.

She made rapid improvement and seemed in a fair way of complete recovery, when she suddenly became extremely pale and collapsed and died in the course of a few hours on November the 4th, 1904.

(3) D. H—, female, aged 6 months. Admitted April the 29th, 1905. Chronic moist eczema of the head and face since five weeks old. She had bronchitis and pneumonia when three months old.

The child looked very ill, cried a lot and did not feed well.

On admission the temperature was 105° F., but dropped the same day to normal and remained at that level till May the 29th and 30th, when it rose to 100° F. and then 101° F.

The child was treated with liquor plumbi subacetatis diluti and then calaminæ præparatæ ʒj and unguentum zinci benzoati to ℥ j.

May the 28th.—Eczema quite dry and beginning to disappear.

May the 30th.—Eczema gone. The patient suddenly became very ill, pale and collapsed, and had twitchings of the right arm and leg.

May the 31st.—The pulse became weaker and weaker. There

was general twitching, unconsciousness and slight convulsions, and the patient died without regaining consciousness.

(4) G. E. S—, male, aged 6 months. Admitted May the 2nd, 1907, with chronic moist eczema of the face, scalp and right arm. Had bronchitis when two months old. He was treated with calaminæ præparatæ ʒj, unguentum zinci benzoati ad ℥j.

The eczema slightly improved, but on May the 14th he was seized with diarrhœa and vomiting and sank and died on May the 15th.

(5) M. G—, female, aged 1 month.

Admitted with a universal acute eczema on November the 15th, 1910.

She was treated with tinct. lavandulæ ♏xv, emplastri plumbi, olei olivæ āā partes æquales ad ℥j.

The temperature was 102·8° F. on admission and fell to subnormal before death, which occurred in a state of collapse on November the 18th.

I am sorry to have to confess that in not one of these cases was I able to obtain a post-mortem examination.

Regrettable though this is, I am inclined to think, however, that in all probability an examination would have thrown very little light on the cause of death.

Of the five cases recorded, the second and third in the series seem to me much the most interesting from the point of view of discussion.

The first and the fifth cases were in the hospital such a short time that not much can be said about them, and of the fourth case it might be said that the diarrhœa and vomiting, which came on just before and apparently caused the fatal issue, were intercurrent affections and quite enough in themselves to carry off a weakly child.

The second and third cases, however, seem to me extremely interesting.

In the second case the recovery from the eczema was rather unusually rapid, and all seemed to be going on to a completely successful issue, when without any warning all the phenomena of shock with collapse developed and the patient died in the course of a few hours.

In the third case the recovery from the eczema was much more gradual, but on recovery the same symptoms supervened, though the fatal issue was not quite so rapid and was accompanied with symptoms of cerebral irritation.

To my mind it is very difficult to find any adequate theory to account for death in such cases, and from the small search I have

been able to make in the comparatively slight allusions to this matter in medical literature, little light is thrown on the subject.

Dr. Leonard Guthrie,* Dr. Pernet and Mr. Arthur Edmunds allude to such deaths occurring in cases of skin lesions.

Dr. Guthrie alluded to it more especially in cases of syphilis, but asked whether members of the Society had met with such deaths in cases of chronic eczema of long standing, which had been followed by rapid healing, and then sudden and unexpected death.

He mentioned a case in a child, aged 2 years, which had been treated with such success that in ten days the eruption was nearly gone.

The improvement was so remarkable that the matron drew the mother's attention to it, and the mother remarked, "I feel sure you are curing that too quickly." The next day the child had symptoms of gastro-enteritis and died.

He also mentioned a case of ringworm of the scalp which was treated too vigorously by the mother with an ointment containing cantharides and red oxide of mercury. The child died in twenty-four hours.

In the case of eczema the post-mortem examination showed a marked condition of congestion in almost the whole gastro-intestinal tract; Peyer's patches were raised above the surface and dark red in colour, and the mucous membrane was swollen and inflamed and marked by areas of injected arborising vessels.

In the case of ringworm only hyperæmia of the brain and congestion of the kidneys were found.

He believed that in some instances the death might be due to poisonous applications absorbed through the cutaneous surface, which was denuded of epithelium. But that would not account for all, and he was inclined to think there was some ground for the prevalent belief in the harmfulness of "driving in" an eruption as it was called.

Dr. George Pernet said that in a large experience of syphilitic and eczematous children at the Skin Department of University College Hospital he had never known such an event occur, although they endeavoured to cure the eruption as quickly as possible.

Perhaps the "*status lymphaticus*" might have something to say in the matter.

He had certainly been told by old patients that when their weeping eczema was cured they did not feel so well in general health.

He had felt there might be something in the contention of such

* 'Rep. Soc. Study Dis. Child.,' 1905, v. pp. 136–7. In a discussion on "Cases of Sudden and Unexpected Death in Children."

patients. Perhaps the oozing surfaces gave the inadequate kidneys a rest and helped them in that way.

Mr. Arthur Edmunds mentioned a case of an extensive burn in a girl, in which every time skin grafting was done over too large an area the patient became very ill, with a temperature and a mild attack of septicæmia; he attributed this to the corking up of drainage products. "In the cases of that kind if a limited checking of free discharge could produce septicæmia, it was only a matter of degree for it to be capable of causing death."

Maille ('Semaine Méd.,' 1907, xxvii, p. 255) records two cases of eczema ending in sudden or rapid death.

The first case was a child with extensive eczema and concurrent diarrhœa and enlargement of the liver. The case died in coma accompanied by a subnormal temperature, and post mortem granular and fatty changes were found in the liver with partial necrosis and the kidneys were not healthy. The second case was an infant, aged 8 months, with general eczema which was treated with wet dressings and died in convulsions.

Fatty and granular changes were found in the liver.

Variot ('Gaz. d. Hôp.,' 1906, lxxix, p. 951) in a discussion of infantile eczema, says that all manifestations are preceded or accompanied by digestive trouble, vomiting, diarrhœa, constipation, all pointing to intestinal toxæmia.

He treats the cases with weak remedies, as too rapid a cure may react on the nervous system, causing sudden death with cerebral symptoms.

Dr. J. D. Rolleston tells me that Gaucher, in his lectures at the St. Louis Hospital, used to warn his audience against treating cases of eczema in children too energetically, owing to the possibility of sudden death occurring.

Looking at my own cases I do not think the treatment can have caused sufficient absorption of metallic poisons to cause death.

If that were so, one would expect death to occur while there were still large weeping surfaces, and not when the disease was almost or entirely healed, and, moreover, many other cases have been treated in the same way without death.

Neither do I propose to bring in that blessed phrase "*Status lymphaticus*" as a *deus ex machinâ*.

I am not sure that there is any such thing as *status lymphaticus*, and at any rate there was no special evidence of it in these cases.

It seems to me more likely that these untoward results must be explained by some sort of humoral pathology.

On the one hand one might suggest that the weeping surfaces of the skin were a manifestation of some internal toxæmia finding a vent on the surfaces of the body, and that the healing of the skin forced the poison upon the internal vital centres with fatal effect.

Some obscure analogies of this sort may, I think, be found in certain gouty manifestations. Or, on the other hand, the fatal issue may be due, not to a toxic, but to a physical alteration in the balance of the fluids in the body causing congestion of fluids in the brain and a fatal effect by pressure on the fourth ventricle. However, these are pure hypotheses, and everyone is at liberty to form his own conclusion.

I will only add that I have been so impressed by these catastrophes that I have become accustomed to warn mothers that their children may possibly be better with eczema than without it, and that its cure is not always an unmixed blessing.

ON APPENDICITIS IN CHILDREN.

By G. C. E. Simpson, M.B., F.R.C.S.,

Honorary Assistant Surgeon, Liverpool Infirmary for Children and David Lewis Northern Hospital.

The problems of appendicitis in children present many peculiarities, and the subject is becoming of greater importance, owing to the increasing frequency of the disease and the rapidity and severity of the attacks in young subjects.

Most authorities are agreed that appendicitis is much more common in children than formerly, and the statistics of the Liverpool Infirmary for Children bear out this fact. From 1876 to 1891 inclusive, no case of perityphlitis, pericolitis or appendicitis is mentioned in the statistics: during this period, however, one child died of a cerebral abscess which, post mortem, was found to be secondary to a small collection of pus round the appendix, due to perforation of the appendix by a pin. During these sixteen years only one case of non-tuberculous peritonitis is recorded (1891), and between 1884 and 1891 only two cases of fatal unclassified abscess led to fatal results. About 14,000 new cases per annum were seen during this period, a figure which has but slightly increased since. In 1892 one case of iliac abscess with peritonitis is recorded; in 1893 two cases of perityphlitic abscess were cured by operation; in 1898

two further perityphlitic abscesses were found and cured and the first appendicectomy was performed—with success.

In 1901 there were seven cases of appendicitis; all recovered, three being submitted to operation. From 1902 to 1906 there were twenty-four cases (fourteen operations with one death); in 1907 there were seventeen operations with two deaths, and for the last five years the average has been twenty-four cases a year—the highest figure being thirty-four in 1910–11. The death-rate is high —twenty-three deaths in 160 cases, a mortality of nearly 15 per cent.

The general impression is that the cases are not only increasing in frequency but also in severity: in the earlier days they were treated with fomentations till the abscess pointed and it was then incised—a method which would be attended with very fatal consequences if applied to the cases of the modern type.

In the last two years thirty-four cases of appendicitis in children under fourteen have been under my care; two thirds were boys. There were three cases each at 4, 5, 6 and 7 years of age; four each at 8 and 9, eight at 10 years, and two each at 12, 13 and 14.

Only four cases were interval cases. In one of these who had been operated on six months previously for appendix abscess and had had another slight attack subsequently, it was remarkable how completely the adhesions had been absorbed. Two of the others had had three previous attacks, and a fourth many slight attacks; in one a concretion was found having for its nucleus a piece of coal and some hairs; in two there were marked pericolic membranes and the appendices contained concretions of threadworms. Threadworms are frequently found in the appendix in children in cases of chronic appendicitis; their presence in the organ was noted by Santorini in 1724.

Of the thirty acute cases, fæcal concretions were found in eighteen, in another oxyuris was present; in all the remaining cases the appendix was not removed or was ruptured before operation, so that the absence of concretions in these cases cannot be affirmed. The concretions varied in size and in many cases were obviously of pathological importance. The smallest, barely larger than a pin's head, was found in an acutely inflamed appendix hardly one inch in length; there was a very definite stricture in which the concretion was impacted, and the peripheral end was tensely distended with pus. In other cases the concretions appeared to determine the site of ulceration and gangrene. Concretions were extremely common in these cases, twenty-three of which were primary attacks, being far more common than in appendicitis in adults.

Conditions found at operation.—Of the thirty cases only four were operated on within forty-eight hours of onset,—only four were seen within forty-eight hours of onset—and all lived. Three were already gangrenous; in one the surrounding fluid was sweet and primary closure was performed; in another drainage was deemed necessary, and secondary suture after forty-eight hours from the operation failed. In one the appendix lay anteriorly, and, except for a small portion near the base, it was enveloped by the omentum; omentum and appendix were removed *en masse*, and an abscess containing two drachms of foul pus was found around the appendix; primary closure was performed.

Eleven perforative cases were met with on the third day—two with localised abscess, two with local peritonitis requiring only local drainage, and seven with general purulent peritonitis requiring drainage at two or more points. In only eight was appendicectomy possible. One case died on the sixteenth day.

On the fourth day there were three perforative cases, all with general peritonitis, and all recovered. On the fifth day there were six cases, all perforative: in one there was localised abscess, in two spreading peritonitis, in three general peritonitis. The abscess was so localised in the omentum that it could be excised intact with the appendix and primary closure was obtained. The three general peritonitis cases were all extremely ill and all died.

On the seventh and subsequent days there were six cases; two acute cases without perforation of the appendix and in which primary closure was obtained; one case of localised abscess; one of general purulent peritonitis, and two cases (tenth and twelfth days) in which a localised abscess had ruptured and the general peritoneal cavity was becoming rapidly involved. The case with purulent peritonitis died.

Though small, this series shows the severity of appendicitis in children, and the dangers of delay in diagnosis and operation; in the thirty cases there are only three in which the mischief was still confined to the appendix at the time of operation; there are only five cases of definite localised abscess, though in at least seven more there had been some attempt at localisation. General peritonitis was present in thirteen cases, and in nine others there was spreading peritonitis, fortunately still confined to the iliac fossa.

In the younger children there is apparently less chance of a mild attack: of twelve cases under eight years old all had perforated, in two there was definite localisation, in two more attempts at adhesions.

In 100 cases recorded by Holt, forty terminated in general peritonitis, fifty in abscess, and ten resolved. Kelly says that general peritonitis occurs in 50 per cent. of cases of appendicitis in children.

Results.—Out of the thirty cases only six admitted of primary closure. In two of these the abscess was so localised in the omentum that it could be extirpated without opening; in two there was acute inflammation without gangrene, in one subacute inflammation, and in one the appendix was gangrenous but not perforated.

Five cases died, and in most of these the condition was practically hopeless at the time of operation; it was remarkable how long they survived under the influence of saline injections and stimulants.

Many of the deaths from appendicitis in children are preventable, and will in the future be prevented by earlier recognition of the condition, and by operation in the earliest stages before perforation has occurred. Earlier recognition can only be obtained by a clear realisation of the symptoms.

Symptoms.—In this series of thirty cases *severe abdominal pain* was an early symptom in all save one. *Vomiting* occurred in twenty-five cases—four of the exceptions were cases with retrocæcal appendices; *constipation* was a prominent feature in ten, diarrhœa in six cases. *Pyrexia* was absent on admission in only two cases—in one after a long railway journey, and in the other in spite of generalising peritonitis.

Marked *tenderness and rigidity* over the right iliac fossa were present in twenty-eight cases; in two they were doubtful—one with a peritoneal cavity obviously full of pus, and the second an extremely toxic case, with the child semi-comatose from acetonæmia. *Diminished mobility* of some part of the abdomen on respiration was marked in twenty cases; *abdominal distension*, a sign of ill omen, was present in six cases.

Certain very definite signs and symptoms emerge from this brief summary, and it must be our duty to impress on the public that attacks of abdominal pain and vomiting in children must be regarded more seriously in future—not treated lightly with domestic remedies and a dose of castor-oil. If the child is also feverish it becomes the more important that a doctor be called without delay; should the doctor find any tenderness or rigidity in the right iliac fossa he should at once call in a surgeon with a view to immediate operation.

The following case is most instructive. This parent went to her doctor—for reasons unconnected with the boy—and in the course of

conversation mentioned that this child was not very well. Inquiry elicited the fact that he had had abdominal pain for twenty-four hours and had also vomited; the doctor offered to see the child, though it was 9 p.m. The mother said she thought the illness was not serious, and that she would send the boy up the next morning if not better. The doctor inquired further, and hearing that the boy had been feverish he insisted on seeing him that night; and by midnight a gangrenous appendix, on the point of perforating, had been removed; there was no sign of adhesions, and the general peritoneal cavity would certainly have been infected by morning. The child was home again in nine days.

Special points.—Many other interesting features of the cases may be briefly alluded to. The appendices varied in length from eight inches to less than one inch; in a large number of cases the organ lay in a high position; in one the cæcum still lay close to the gall-bladder, and was so twisted that the base of the appendix lay at the apex of the gall-bladder; the high position can often be diagnosed from the position of the abdominal resistance, or tumour, and the incision adapted accordingly; in these cases the rectus sheath incision was generally utilised, and in some cases it lay entirely above the umbilicus.

In suppurative cases no long search for the appendix is justifiable; rapidity of operation is of the utmost importance, and if the appendix is difficult to isolate, or to find, it is better to be content with simple drainage. Should recurrence take place, or a ventral hernia develop at the site of the drain, the appendix can be removed subsequently with greater safety and often with little difficulty. In eight cases the appendix was left behind, and in several only part of a ruptured appendix was removed; in no case was there cause to regret this procedure, and in one at least of the fatal cases the child might have stood a better chance if it had been adopted.

Ether is the anæsthetic of preference, but in cases with acetonuria, and in some of the most advanced cases of peritonitis, local or spinal anæsthesia offers more hope of a favourable result.

In the after-treatment the Fowler position and saline infusions must be our chief support; as a rule rectal injections of four to six ounces of saline every four hours were used, but in the worst cases continuous subcutaneous infusions are required. In addition to strychnine injections of pituitary extract were found very valuable in combating shock and tiding the bad cases over the critical early days. Feeding must be commenced early in children, especially in the younger ones.

In conclusion I again urge that in view of the frequency—the increasing frequency and severity—of appendicitis in children, we should lose no opportunity of impressing on the public the possible severity of abdominal pain in a child. And I urge on the profession the advisability of early operation—temporising, waiting for an interval, or for more definite signs to develop, may be attended by most serious consequences. Early operation is the treatment of appendicitis in adults; it is even more important in children, in whom fewer cases remain localised to the appendix itself, in whom there is less tendency for adhesions to form, less chance of a localised abscess, and the disease runs a more rapid and severe course.

In all stages of acute appendicitis in children operation should follow immediately on diagnosis; the signs and symptoms may be slight, with very serious conditions in the abdomen, and only surgeons with a very wide experience may, in rare cases, be justified in waiting for convalescence before performing their operation.

DIPHTHERIA OF THE ŒSOPHAGUS.*

By J. D. Rolleston, M.D.,
Assistant Medical Officer, Grove Fever Hospital, London.

A boy, aged 6 years, was admitted to hospital on March the 22nd, 1913, on the fifth day of disease. Death took place within one hour of admission.

Condition on admission.—Profound toxæmia, pulse imperceptible, temperature 99° F.

Palatal and faucial œdema, membrane on tonsils, pillars and palate, considerable neck swelling, oral fœtor and profuse nasal discharge. Slight stridor, croupy cough and recession.

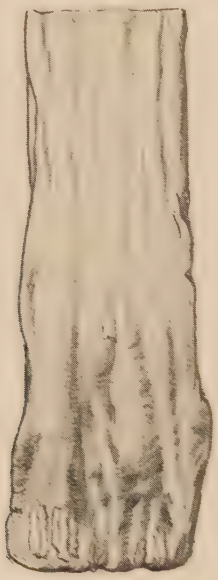
The specimen (*vide* Fig.) shows a normal condition of the upper part of the œsophagus. The lower $1\frac{3}{4}$ in. present longitudinal areas of congestion and submucous hæmorrhages. A small piece of membrane is visible at the upper end of this congested area, and there are larger areas of membrane present at the cardiac end.

Membrane was also found in the fauces and palate, naso-pharynx,

* A specimen of the case was shown before the Section for the Study of Disease in Children of the Royal Society of Medicine on April the 25th, 1913, and is now in the Museum of the Royal College of Surgeons.

larynx and trachea. The stomach was normal. Pure cultures of Klebs-Loeffler bacilli were obtained from the lesions in the throat and œsophagus. The other organs presented nothing worthy of note.

The case illustrates an early stage of the invasion of the œsophagus by diphtheria, and should be compared with that which I reported in October, 1911. In both cases the lesions were confined to the lower end of the œsophagus, and in both there were multiple diphtheritic lesions elsewhere associated with profound toxæmia.



Diphtheria of the œsophagus. (From a drawing by M. E. Waring.)

The first case, however, was in a much later stage, as the membrane in the œsophagus had separated, leaving necrotic areas. Reference should also be made to the striking coloured drawing of diphtheria of the œsophagus in the second edition of Baginsky's monograph.

Probably diphtheria of the œsophagus is not so rare as is generally supposed, although there are details of only twenty-four cases on record, including these two of my own. Fourteen of these occurred in the pre-antitoxin era, and in the rest antitoxin was either not given at all or else too late.

In my last paper I said that it was probable that if a systematic

examination of the œsophagus were made post mortem in every case of diphtheria, membrane would be found more frequently in this situation, and quoted the observations of Mallory, who found definite membrane in the œsophagus in twelve cases, or 4·7 per cent. among 251 necropsies in diphtheria cases.

During the last eighteen months, *i. e.* since I reported my last case, I have examined the œsophagus in ten cases of diphtheria which died in the acute stage, and in two cases, in which the present is included, I have found œsophageal membrane present.

The other case was that of a girl, aged 6 years, admitted to hospital with very severe faucial, nasal and laryngeal diphtheria, on the ninth day of disease. Death occurred within twenty-four hours, in spite of large doses of antitoxin, and, post mortem, the lesions in the fauces, naso-pharynx and larynx were almost identical with those seen in the present case.

In connection with unusual situations of diphtheria in the alimentary tract, it should be noted that while diphtheria of the œsophagus and stomach is usually fatal, four cases of diphtheria of the intestines have recently been recorded, all of which recovered, while only two were followed by paralysis. A few cases of diphtheria of the œsophagus have ended in recovery, but with the development of a stricture. I referred to a certain number of these cases in my last paper, and since then another case has been reported by Réthi.

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(3) Rolleston, J. D.—'Brit. Journ. Child. Dis.,' 1912, ix, p. 12; and 'Lancet,' 1913, i, p. 129.
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CASE OF HYPER-ACTIVITY OF ANTERIOR LOBE COMBINED WITH DEFICIENT ACTION OF POSTERIOR LOBE.*

By E. Cecil Williams, M.B.,

Physician to the Royal Hospital for Sick Children, Bristol.

Boy, aged 13 years 8 months.

Family history: Paternal grandfather said to have been a very big man.

* This case was reported at a combined meeting of the Sections of Neurology and Ophthalmology of the Royal Society of Medicine on March the 5th, 1913.

Previous health good.

Present illness: Excessive growth began at nine years of age with increase in height and stature, and in addition adiposity of the typus femininus. Viewed in profile, lumbar lordosis is marked.

Present state: Is intelligent and active. Height 5 ft. 2 in., weight 10 st. 7 lb. Circumference of head 22¼ in. Chest measurement 35½ in. Umbilical measurement 35 in. X rays show large size of the hands, and tufting of the terminal phalanges. Skiagram of the skull is not clear enough to enable one to say anything

definite as to the size of the sella turcica. The extremities tend to be cold and blue. Blood-pressure 115 mm. Hg. Genitals not well developed; no pubic hair. There are no local signs—no headache; vision and fundi are normal.

Glandular symptoms: Increase in stature (anterior lobe activity) and adiposity (posterior lobe defect). Sugar tolerance not estimated. Boy has no liking for sweet things.

Note.—He has increased one inch in height during the last two months, and there is a very slight loss of weight.

Royal Society of Medicine.

SURGICAL SECTION.

May the 6th, 1913.

Excision of the Spleen for Splenic Anæmia.—Mr. Jonathan Hutchinson.—A boy, aged 7 years, admitted to hospital for lobar pneumonia, was found to have a large and tender spleen. He had always been delicate, while the rest of the family of seven children were healthy. Four years later he was admitted again with splenic anæmia, the spleen reaching to the umbilicus. Temperature normal. Blood examination: Red cells 2,750,000; hæmoglobin 45 per cent.; white cells 3400. He was admitted again seven months later as he had been getting steadily worse and hæmatemeses had occurred. There was now constant pyrexia. The red cells were now 2,100,000 and the hæmoglobin only 30 per cent.; the white cells numbered 3800, of which 63·5 per cent. were polymorphonuclears and 23·5 per cent. small lymphocytes. Drowsiness was marked. After consultation with Dr. Kidd and Dr. R. Hutchison the spleen was removed. It showed general hypertrophy without any signs of inflammation. Rapid and complete recovery took place. Two months after the operation the red cells numbered nearly 5,000,000, the hæmoglobin was 65 per cent. and the white cells were 9400. A year after the operation the boy was in excellent health.

Sir John Bland Sutton said that in 1895 he had removed a big spleen from a girl aged 5 years for splenomegaly with anæmia. She was now aged 23 years and was a healthy, attractive woman, working as a compositor.

Mr. F. F. Burghard and Dr. G. A. Sutherland reported the after-history of two cases of splenic anæmia (*v.* British Journal of Children's Diseases, 1911, viii, *p.* 73). (1) Woman, aged 20 years, whose spleen had been removed seven years ago. She had no symptoms referable to the absence of the spleen, and was a well-grown and well-nourished girl who had been in service for some years. Blood examination, May, 1913: Red cells, 4,740,000; white cells, 7000; hæmoglobin, 98 per cent.; colour index, 1; poikilocytes, 0; nucleated red cells, 0. Differential count: Polymorphonuclears, 76·5; small lymphocytes, 19·0; large lymphocytes, 2·75; hyaline and transitionals, 1·0; eosinophiles, 0·25; mast-cells, 0·5. (2) Girl, aged 9½ years, whose spleen had been removed three years ago. She was well grown and in good health. Blood examination, May, 1913: Red cells, 4,510,000; white cells, 12,500; hæmoglobin, 88 per cent.; colour index, 0·98; poikilocytes, 0; nucleated red cells, 0. Differential count: Polymorphonuclears, 41·5; small lymphocytes, 38·75; large lymphocytes, 12·25; hyaline and transitional, 2·75; eosinophiles, 4·25; mast-cells, 0·5. The superficial lymph-glands were not enlarged.

Mr. G. H. Makins showed a girl, aged 9 years, whose spleen had been removed fifteen months previously for splenic anæmia. She had had subcutaneous hæmorrhages and copious hæmatemeses. Two days after the operation the number of leucocytes, which had never exceeded 3000, rose to 43,000 per cubic millimetre, and then slowly fell, 12,000 being reached by the seventh day.

A Case of Lieno-testicular Band or Ligament.—Mr. J. Hutchinson operated on a boy, aged 12 years, for a left hydrocele which seemed to communicate with the peritoneal cavity, but could not be emptied into it. The hydrocele was bilocular, and when it was opened a firm rounded band was found attached to the body of the testis, which was atrophic. The band was moniliform, the nodules being of a purple colour, and the rest of the band white and elastic. Traction on it proved that it passed upwards the whole length of the inguinal canal, and after incision had been made through the left linea semilunaris, it was traced up to the left pouch of the diaphragm, and ended at the hilum of the spleen, being about 12 inches in length. The band and testis were then removed. The wounds were then closed and a radical cure obtained. Section of the purple nodules showed that they were splenic in origin. The case is probably unique.

OTOLOGICAL SECTION.

May the 16th, 1913.

Unilateral Deformity of the Ear.—Dr. E. A. Peters showed a child who had been born with a deformed ear. The helix and antihelix were fused and small. The tragus and antitragus were relatively diminished in size, and the cartilage was flat, small, with definite edges. There was no evidence of muscle, and the external auditory meatus was represented by a shallow pit. The internal ear was normal. No maternal impression had been assigned by the mother, as in the case reported by Melland in the British Journal of Children's Diseases, 1908, v, *p.* 481.

Unilateral Deformity of the Auricle, Meatus and Middle Ear.—Mr. E. D. Davis showed a specimen from a child aged 8 months, who had died of enteritis and convulsions. There was no family history of deformities. The auricle was undeveloped, and no signs of cartilaginous or bony meatus existed, but a blood-vessel filled the position of the meatus. The middle ear was filled by gelatinous embryonic tissue in which the fairly developed malleus and incus were imbedded. The auditory nerve and brain appeared normal.

Occlusion of Meatus and Middle Ear by Bone following Operation for Acute Mastoiditis and Extradural Abscess.—Dr. H. J. Davis.—A boy, aged 10 years, was operated on twice for extensive mastoid disease in October, 1912. At the present time not only was the large bone-cavity filled in, but the process of new bone formation had extended, and the mastoid, middle ear and meatus had been converted into a mass of solid bone.

Congenital Prominent Auricles treated by Operation.—Dr. J. Dundas Grant and Dr. Dan McKenzie showed a boy, aged 10 years, whom they had operated on three years previously. In the left ear (Dr. Grant) the skin of the posterior surface of the auricle and of the adjoining portion of the mastoid region had been removed and also a slip of the auricular cartilage. In the right ear (Dr. McKenzie) the skin surface only had been treated. Satisfactory results had been obtained on both sides.

Dr. Dan McKenzie also showed photographs of a girl whom he had operated on for the same condition at the age of four with satisfactory results.

Thrombo-phlebitis of the Mastoid Emissary Vein.—Dr. Dan McKenzie.—In an operation for mastoid abscess on a boy, aged 8 years, an unusually large mastoid emissary vein was cut and bled freely. Three days after the operation the temperature rose to 102·2° F. The wound was re-opened and the vein was slit up when it was found to contain a clot ¼ in. long. The lateral sinus was healthy. Thirty-six hours later the temperature fell to normal and remained so.

Congenital Syphilitic Deafness Treated by Neo-salvarsan.—Mr. J. F. O'Malley showed a girl, aged 10 years, who had been deaf in both ears for twelve months. The ordinary stigmata of syphilis were absent, but Wassermann's reaction was positive. After three doses of neo-salvarsan the hearing was much improved. Mercury was not given.

Phlebitis without Thrombosis of Sigmoid Sinus.—Mr. A. Cheatle. —A child, aged 1 year and 11 months, was operated on for acute mastoid abscess. The sinus wall was greatly thickened by inflammation and its lumen was very small but did not contain any thrombosis.

Recovery took place.

Temporo-sphenoidal Abscess following Mastoid Disease and Aural Polypus.—Dr. H. J. Davis.—A girl, aged 14 years, who had had otorrhœa for four years, was admitted to hospital with vomiting, vertigo and facial paralysis. A large polypus which was protruding from the meatus was removed and the mastoid antrum was opened; the antrum was eroded and an extradural abscess was evacuated. The brain protruded into the wound but did not pulsate; the temporo-sphenoidal lobe was therefore incised and three drachms of pus evacuated. Recovery took place.

Philadelphia Pediatric Society.

May the 13th, 1913, Theodore Le Boutillier, M.D., President.

Spasmus Nutans.—Dr. Howard Kennedy Hill showed two cases of spasmus nutans, each with nystagmus and head-nodding both from side to side and forward and backward. In each instance the baby lived in a very dark room, where sunlight rarely, if ever, penetrated. There were some signs of rachitis, but not at all marked. Dr. Hill referred to his paper upon this subject, read before the Society (*v.* British Journal of Children's Diseases, 1910, vii, *p.* 321).

Pyloric Stenosis.—Dr. C. Henry Lefece presented an infant with pyloric stenosis. Birth was instrumental, and the baby was breast-fed

three weeks, with constipation and belching. Bottle-feedings were added three times daily. Projectile vomiting followed almost every feeding up to seven weeks, in spite of various formulæ and methods employed. When Dr. Lefece first saw the baby, at seven weeks, it appeared to be *in extremis* and hospital care was refused. He improved upon hypodermoclysis and enteroclysis, small quantities of diluted whey hourly and olive oil inunctions. Tumour formation and gastric peristalsis were noted during digestion and persisted; vomiting ceased and constipation diminished. The food was gradually increased, and the boy now takes an ounce of a fairly rich cream and whey mixture. Enteroclysis by the drop method is still employed twice a week. Mercurial oil inunctions are used daily. He is now five months old and weighs 9 lb. 3 oz. Gastric peristalsis and tumour formation are not so marked. There is no vomiting, and there are two light yellow stools daily. Although no Wassermann's reaction was made, and no specific history obtained, the marked improvement after the mercurial inunctions is very significant.

Dr. J. P. Crozer Griffith said that Dr. Lefece was to be congratulated on the outcome of this case. It is true that the regular fæcal discharges showed the pyloric stenosis not to be complete. It is very important to distinguish, if possible, between cases of stenosis dependent upon hypertrophic changes and those which may be called pylorospasm. Earlier German and English statistics showed a very encouraging percentage of recovery in cases called "stenosis" without operation. Undoubtedly, in most of these cases the narrowing depended on spasm only. Dr. Griffith's experience has been that to distinguish between these two forms clinically has not as a rule been possible. The character of the vomiting, peristaltic movements of the stomach and the absence of fœcal discharges are the same in each. Discovery of a distinct tumour on palpation is strongly in favour of hypertrophic stenosis, but in most cases this tumour cannot be found, even though an anæsthetic be employed. Experience has taught him that it is not safe to make the absence of fæcal movements the test of the presence of stenosis. He has seen cases gradually grow worse, and finally be operated upon too late for benefit, the delay depending solely on the fact that the baby discharged fæces; while in other cases of stenosis—absolute for days, or even longer—final complete recovery has taken place, the case certainly being pylorospasm. The conditions may often be combined, a certain degree of hypertrophic stenosis made worse or better at intervals by the presence or absence of pylorospasm. The diagnosis is of the utmost importance inasmuch as pure pylorospasm can be safely treated by lavage and expectant measures at least for a time, while the earlier the hypertrophic stenosis is operated upon, the greater are the chances of recovery.

Dr. Levi J. Hammond said that he had operated upon four cases of congenital hypertrophic stenosis of the pylorus, all accompanied with classical symptoms. Two had been performed upon infants of the same parents. Obstruction was complete, in one at 42 and in the other at 60 days of age. In view of the pathologic findings of true hypertrophic changes at operation, radical treatment would seem alone indicated, and unless posterior gastro-enterostomy, the operation of choice, be performed before medical treatment has proved valueless, the former cannot contribute its full measure of service, resulting in a high mortality. Mortality should not exceed 5 per cent. if diagnosis is made early and operation promptly performed. The patients referred to all recovered; the oldest is now almost four years old.

Renal Calculi in Children.—Dr. J. Stewart Rodman reported a case of bilateral calculus in a boy, aged 12 years, who had meningitis when eight years old. Hæmaturia had existed for five months. X rays showed stone in right kidney and three stones in the left kidney. The right was operated upon February the 11th, 1911, and the left November the 12th, 1911. Nephrotomy was performed at both operations and the stones found. Recovery was prompt after the first, stormy after the second operation, due to suppression of urine for forty-eight hours. The stones were uric acid. The boy was present, showing his good health. While bladder stones are common, recent literature shows renal calculus to be rare. It is more frequent in boys and in the first decade; more often found abroad than in America. There is great diversity of opinion as to actual ætiology. Ebert considers uric acid infarcts so common as to be almost physiologic. Calcium contents of water and gastro-intestinal disturbances are important contributing causes. Primary stone does little damage to kidney tissue, although secondary stones, the product of infection, are always accompanied by grave renal changes. The absence of typical renal colic in nearly all case reports is worthy of mention. Hæmaturia is a frequent symptom. Urate stones are most frequent. Cystin and xanthin stones are almost never found in children. Renewed importance must be attached to post-operative treatment, since stones may re-form. The known solvent properties of the kidney must be aided.

Dr. Alexander Randall spoke of the many interesting points in bilateral renal calculus. The condition is not recognised in many cases until the child has grown to adult age, unless some outward sign, as hæmaturia, develops; the X rays usually make the diagnosis. All stones do not, however, give shadows, as, for instance, urate stones. Nor are all shadows stones, for they may mean tuberculous foci. The location of the stone by the interpretation of the X-ray plate is valuable pre-operative information. While cystoscopy has not been much used in children, Dr. Randall has used it, with catheterisation of the ureters, for the performance of the phthalein functional test in two girls of 3 years, one of 9 years, and an infant of 26 months. It is best to operate upon the better kidney first. After removing the stone by pyelotomy, copious lavage, using about a pint, is advised of the area wherein the stone lies. A ureteral catheter should also be passed down to the bladder before the wound is closed.

The Treatment of Tuberculous Adenitis.—Dr. John H. Jopson discussed some fallacies in the treatment of tuberculous adenitis. He said that there appeared a tendency on the part of some surgeons at present to recede from the former attitude in regard to the surgical treatment of tuberculous adenitis and to substitute conservative measures for extensive operative procedures. The simple incision and curetting of broken-down glands in conjunction with hygienic measures was recommended by some, while the X rays, tuberculin therapy and Bier's hyperæmic treatment had their advocates. It seemed to him that the extravagant claims of the upholders of the X rays were unwarranted or founded upon insufficient data, and that, when they condemned the results of operative treatment as unsatisfactory, they ignored the work of men like Dowd and others. The studies of long series of cases by Dowd, Wohlgemuth and Van Noorden had shown that cures in children could be obtained by radical treatment in from 70 to 90 per cent. of cases, while the 649 cases reported by Judd in Rochester, mostly in adults, also gave splendid end-results. A study of the path-

ology of the condition shows that the infection, which found entrance through the tonsils, the teeth and the mucous linings of the buccal and pharyngeal cavities, lodged primarily after passing these portals in the lymphatic glands in the upper portion of the neck, and passed from them into the deeper chain along the great vessels. There was more tendency to spontaneous limitation in children than in adults, but in neither case was there communication with the bronchial or mediastinal glands. The tedious nature of the operation made it one which did not appeal to all surgeons. The X-rays, as shown by Pancoast and others, were useful as an adjuvant to surgical treatment, but could not replace it, while tuberculin therapy was protracted, expensive, and contra-indicated where advanced caseation and liquefaction necrosis were present.

Dr. E. B. Hodge said that the bacteriology of the condition is interesting. Dr. Paul A. Lewis had found that about 25 per cent. of cases show bovine tubercle bacilli. The tonsils and adenoids, which seem to be the usual portal of entrance of the tubercle bacillus, are not removed as regularly as should be the case. Operation, if thorough, is successful. While often difficult, it results in a perfect cure. Dr. Hodge agrees with Dr. Jopson; his results with the X rays and with tuberculin have not been good. The modern operation is systematic, complete, and with its incisions in the neck-folds, leaves little or no scarring.

Dr. G. M. Dorrance said that operations upon the neck are the most satisfactory as they require some anatomical knowledge. After a number of failures, he was induced to try the X rays in glands of the neck upon patients who refused operation, and was agreeably suprised at the results obtained. Since then he has not operated unless the masses were exceptionally large, and followed this by a series of X ray exposures. The reason for the number of operations is that cases recur and are re-operated upon either by the same or some other surgeon. Latest French text-books recommend the X-ray treatment rather than operation, since this leaves little or no scar. It is important to prevent glandular involvement, which can be done by attention to the teeth and tonsils. The primary source of the infection should be removed. Caseous material is often found in tonsils; Dr. Dorrance always has them removed. With removal of the primary source many cases will recover spontaneously. Besides, there is a certain operative mortality from ether, hæmorrhage, etc. It is not advisable to give ether, since many cases have tuberculous foci elsewhere. He believes Dr. Jopson's statment that 30 per cent. of cases die from tuberculosis.

Dr. Jopson stated that he was always in the habit of recommending the removal of enlarged and diseased tonsils and adenoids in these cases. He had frequently seen them removed before operation for glands was undertaken, but believed that only exceptionally could operation be avoided thereby. Nevertheless in every case the portal of entrance of the tuberculous germs should be the subject of careful study and treatment. If, as Dr. Dorrance says, 80 per cent. of these cases recover after removal of tonsils and without adenectomy, then the total number must be enormous. We see these cases in all stages of caseation and suppuration where removal of the tonsils could not possibly result in cure, and one can easily see by consulting the daily list of operations, now being published by the bulletin of surgical clinics, that operations for cervical adenitis constitute a large proportion of the cases operated in every clinic. The operation cannot, therefore, be said to be considered an unsatisfactory one by the majority of surgeons or one which can be avoided by simple removal of adenoids and tonsils. The

incision he prefers in these cases is the oblique one which follows the natural creases of the neck, leaving a relatively small scar, and one that does not as a rule hypertrophy or stretch afterwards.

What can be done to prevent Milk-poisoning?—Dr. William N. Bradley said that hundreds of babies die every year from diarrhœal diseases, largely due to milk-poisoning. The cause of milk-poisoning is the existence of pathogenic bacteria in milk. They are present in ordinary market milk in large numbers, due to unsanitary conditions surrounding the production and handling of milk. It is probable that milk is primarily infected at the farm, where very little thought is given to producing a clean milk; and throughout successive stages of transportation the milk is repeatedly exposed to sources of contamination. This is possible because of lack of adequate official supervision. While the Board of Health prescribes regulations, lack of funds prevents their enforcement. Such a contaminated product is unsafe and unfit for use. Our only protection against infected milk lies in pasteurisation. Schorer and Rosenau state that when milk is heated to 140° F. and kept there twenty minutes, tubercle, typhoid and diphtheria bacilli as well as all bacterial toxins are destroyed. As it is practically impossible to obtain milk free from infection, all milk should be properly pasteurised. Since any irregularity or any variation of temperature or time will render the process inefficient, it is obvious that all pasteurising plants should receive expert official supervision. Regular instruction and training of the operators of pasteurising plants would do much to further efficient pasteurisation. But pasteurised milk is only a makesbift for clean milk. The vast sums of money used in equipping and maintaining pasteurising plants could be expended to much better purpose in producing clean milk, prepared by careful attention to all details of production and proper protection from contamination in all stages of handling. To this end the American Association of Medical Milk Commissions has prescribed regulations governing the production of "certified milk." Only milk produced under such conditions is safe and fit for use.

Dr. Hand said that we can prevent milk-poisoning by putting no milk into the baby's bottle that can poison the baby. Even clean milk may be spoiled before it reaches the infant. Efficient pasteurisation is necessary during the summer. He had noticed in three hot summers that when the temperature hovered around 100° F., there was not a great increase in the incidence of entero-colitis as shown by the work in the dispensaries and by vital statistics, and he could not explain this until it was suggested to him by Dr. Weber that the big milk dealers probably took extra precautions in pasteurising, and so actually sterilised most of the milk served to the city.

Blood-pressure in Infancy.—Dr. Hill, after reviewing the literature upon blood-pressure in young children and infants, reported the findings in twenty-five babies under two years of age, suffering with severe gastro-enteritis, treated at the Babies' Hospital of Philadelphia. The conclusions drawn, although there were exceptions, were that the blood-pressure was rather higher than in normal babies, with a mean between the systolic and diastolic pressure which, when large, gave rather a poor prognosis.

Dr. Percival Nicholson said at present it was almost impossible to obtain any accurate standard readings in normal cases, as different observers have used cuffs of such varying widths. A 12 cm. cuff would give correct readings, but in infants and many children it is not feasible to use a cuff so

wide, as there is not sufficient distance between the articulations on either the arm or thigh to permit its application without the cuff extending over the bony points of the articulation. In recent experiments, he has found marked differences due to variations in the width of the cuffs used. Pulse-pressure or the difference between the systolic (maximum) and the diastolic (minimum) readings is not altered materially by a difference in width of the cuffs, as systolic and diastolic pressure are altered proportionally. Pulse-pressure is especially important in blood-pressure work as it shows clearly the head of flow, and is a good estimate of the extra force the heart is exerting over and above the peripheral resistance, as indicated by the diastolic pressure. As the pulse-pressure becomes smaller the circulation is impaired, and when the difference is small, life is endangered, death ensuing when the systolic and diastolic pressures are equal, or in other words when there is no pulse-pressure. Dr. Nicholson has found it very difficult to obtain readings by the auscultation method, using the thigh and listening over the popliteal artery, as that vessel lies deep and the sounds are hard to hear. At present he uses the arm, auscultating over the brachial artery in children over three years; in young infants he considers the Hoobler modification of the Fette indicator best.

Société de Pédiatrie, Paris.

May the 20th, 1913. (*Bulletin No.* 5.)

Appendicitis in Young Children.—Mme. Nageotte-Wilbouchewitch, speaking on M. Savariaud's communication at the last meeting, laid stress on the use of "vibratory palpation" as a means of ascertaining the tension of the abdominal muscles. A muscle which would give way to steady gentle pressure remained rigid under this method. Sudden flushing of the face provoked by touching the affected region was also a valuable sign. M. Ombrédanne described a chronic form met with in children who had evening rise of temperature, gastric attacks, emaciation, and paroxysmal headaches; this condition was cured by operation, the appendix being found displaced by a short or tortuous meso-cæcum, or sclerosed with impervious lumen, or with hard grey glandular nodules. He was of opinion that in acute cases the mortality would be reduced to zero if operation were performed within thirty-six hours.

Congenital Aphasia without Motor, Sensory or Intellectual Disturbance.—M. Variot showed a boy, aged 6 years, who apparently understood what was said to him but had never spoken since birth, being merely able to repeat a few words in a scanning, explosive fashion.

Abbott's Method of Treating Scoliosis.—MM. Calvé and Lamy showed some cases, of which woodcuts are given in the 'Bulletin,' treated successfully by this method.

Congenital Dislocation of the Hip reduced at the age of 20 months.—M. Lance reported this case of a girl who died four months

after the reduction and showed the specimen, of which there are woodcuts in the 'Bulletin.' The specimen showed that the acetabulum was sufficiently deep at the age of two years to enclose almost the whole of the head of the femur, and that this was due for the most part to a cartilaginous acetabular projection. These observations gave encouragement to attempt reduction as soon as possible, the functional results being better than those obtained by waiting till a more advanced age.

Purulent Pneumococcal Pleurisy of the Right Apex.—MM. Nobécourt and Saint-Girons reported the case of an infant of 14 months, who developed a high temperature during convalescence from measles. There was absolute dulness at the right apex with auscultatory signs of pulmonary compression. In spite of negative exploratory punctures the intensity and persistence of the dulness pointed to pleurisy. Radioscopy confirmed this diagnosis and subsequent puncture withdrew pus; rapid recovery ensued.

Intestinal and Mesenteric Tuberculosis without Thoracic Lesions.—MM. Triboulet and Debré reported the case of an apparently healthy infant who died at the age of 23 months of broncho-pneumonia following measles. The abdominal lesions were intestinal ulceration and caseous mesenteric glands, which had been latent since birth.

The Sun-cure in Infantile Tuberculosis.—M. d'Œlsnitz, of Nice, read a paper calling attention to unfavourable results sometimes observed with this method.

Transmission of Tuberculosis from the Mother to the Fœtus.—MM. Henri Dufour and J. Thiers reported a case of a young woman, aged 19 years, who died of hæmoptysis and meningitis when more than three months pregnant. The abdomen of the fœtus contained fluid; macroscopically the placenta seemed healthy, bacteriological experiments giving negative results, but inoculations from the peritoneal fluid produced tuberculosis.

Vincent Dickinson.

Abstracts from Current Literature.

Medicine.

Post-natal causes of infant mortality (*'Amer. Journ. Obst.,'* 1912, lxvi, *p.* 1063).—**J. T. Wall** states that although the population of Columbia has increased from 160,000 in 1875 to 354,019 in 1911, the infantile death-roll is reduced from 1500 to 1000, and the percentage relation of infant deaths to births from 32·77 to 15·12. The infantile death-rates to births are then compared, Russia and Austria being in the most unfavourable, Norway in the most favourable position. Among towns Amsterdam is the most healthy for infants, and Moscow and St. Petersburg the most deadly. The most remarkable decrease is in Amsterdam, where the infant mortality has declined from 24·5 to 8 per 100 births. Referring to specific causes of death among infants, the author notes that the respiratory group

has decreased during the last quinquennium, owing to the advent of the fresh-air doctrine. The mortality from whooping-cough still remains unchanged, in striking contrast to diphtheria. The mortality among the negro infants, who form over one third of the baby population, is frightful, due to ignorance and laziness of the parents, and the liability of this race to rickets and marasmus. The relation of infantile mortality to poverty is demonstrated by Levy's figures: in families with incomes of 5 dollars or less, the death-rate was 236; with those of 6–10 dollars, 124; with those of 15 dollars and over, only 65. CHRISTOPHER ROLLESTON.

The reduction of infant mortality in New York City (*'Amer. Journ. Dis. Child.,'* 1913, v, *p.* 151).—**S. Josephine Baker** states that fluctuation in the rate of infant mortality is a natural phenomenon independent of preventive agencies—a fact to be borne in mind by public health authorities. Up till 1908 the health authority only combated this scourge intermittently, but in that year a division of child hygiene was inaugurated, one of its functions being the prevention of infant deaths, and by its agency the rate diminished 26 points in three years. In 1911 a voluntary society started 38 milk stations, with one physician to every establishment in summer and to every three in winter. A staff of 200 nurses was also engaged. In spite of unfavourable weather there were 1182 fewer deaths than in 1910. Educational propaganda was effected by 239 leagues meeting weekly and instructing young girls in the methods of baby feeding and hygiene. In 1912 these voluntary milk stations were replaced by 40 municipal institutions, and 150 voluntary associations were federated under one central office with various sub-committees. The milk station sub-committee has decided on the locality of each milk depôt; the hospital and dispensary sub-committee keeps a list of empty beds in hospitals and dispensaries to which ailing babies from the stations can be referred; an outing sub-committee arranges for jaunts to the country, and satisfactory arrangements are made by telephone for supplying emergency cases with pure milk from the relief agencies, until full investigations can be made into the social condition of the parents. The central office publishes a weekly statement of mortality records, distributes polyglot leaflets, and issues a card guide to the milk stations. 44,000 babies are now under supervision, and in 1912 there were 571 fewer deaths under one year than in 1911, 417 of this number representing the decrease in deaths from diarrhœal diseases. In the four-year-period previous to this campaign the infant death-rate each year showed a numerical increase amounting to a total of 3026 deaths, while since the campaign there has been an actual numerical decrease of 2407, the death-rate falling from 160 to 120, and the diarrhœal death-rate from 48·9 to 30·7. The appalling institutional mortality among the newly born is being combated by boarding out babies in private homes under supervision of visiting physicians and nurses. The author concludes by recommending that the milk stations should become educational centres for prenatal instruction, the encouragement of breast-feeding, and baby hygiene.

CHRISTOPHER ROLLESTON.

Infantile mortality in the Duchy of Baden (*'Arch. f. Kinderheilk.,'* 1913, *Baginsky Festschrift*, *p.* 314).—**S. Felsenthal.**—During the last ten years there has been a steady decline in infantile mortality in the Duchy of Baden. Thus the mortality of the legitimate, which in 1900 was 22·0 per cent., in 1910 fell to 15·16 per cent., and that of the illegitimate, which was

33·8 per cent. in 1900, was 21·84 in 1910. The decline in infantile mortality went hand in hand with a fall in the birth-rate. The infantile mortality in the different parts of the Duchy ranged from 7·9 per cent. to 25·1 per cent., being highest in the northern districts where the birth-rate was highest, and there was the highest mortality from tuberculosis. Infantile mortality was less in the towns than in the country, partly because the lowest strata of the working populations could find no homes in the towns and were forced to live in the country, and partly because of the more favourable hygienic conditions of the towns. An enormous percentage of the deaths was due to alimentary disturbances. The paper is illustrated by a number of instructive tables.

J. D. Rolleston.

Importance of hospitals for infants and their part in the prevention of infant mortality (*'Cleveland Med. Journ.,'* 1912, xi, *p.* 693).—**L. Emmett Holt**, in an address given as President-elect before the American Association for the study and prevention of infant mortality, discusses the broad line of infant mortality prevention. He emphasises the great importance of hospitals for infants in treating the more severe cases of illness, investigating their causes and educating professional and lay opinions.

Reginald Miller.

Milk stations or infant mortality (*'Arch. of Ped.,'* 1913, xxx, *p.* 279).—**L. V. Waldron** quotes the reduction in infantile mortality effected by Gelty at his milk dispensary of 37 per cent. on the figure of past years. In June, 1912, two stations with medical and nursing staff were started, bi-weekly clinics were held, babies were weighed, and mothers lectured on the necessity for breast-feeding and its proper management. Modified milk was sent from these institutions to the homes, nurses visited the families and tended the sick, curative work having to take the place of preventive effort, owing to the ignorance of the parents. 113 healthy and 364 sick babies visited the clinic in four months. Of the latter 32 died. Gain in weight during attendance at the clinic is the almost universal rule, the greatest gain being 5 lb. 9 oz. in nine weeks by a hand-fed baby. Subnormal babies are kept under supervision till healthy, and the recourse to patent foods is thus prevented. From October 1 the nurses have taught parents methods for modification at the home of cow's milk, but previously 514 quarts of milk in 27,270 bottles were sent out from the dispensary. The infantile mortality rate has diminished from 181 to 120 in 1912. In 1907, 303 children under 5 succumbed, and at the same rate in 1912, 399 should have died, but as a matter of fact there were only 280 victims—a saving of 119. In the one year class there was a saving of 72; in the two years old 46 survived. There was concomitant decrease in the number of infectious diseases. The cost of equipment of the two stations was $126·87 and the total maintenance expenditure, including the milk, was $2,214·97.

Christopher Rolleston.

Infant milk depôts (*'Arch. of Ped.,'* 1912, xxix, *p.* 724).—**R. G. Freeman** compares the infantile mortality in various French towns before and after the establishment of milk depôts, and finds in consequence of these institutions a 62 per cent. reduction of the death-rate. Park and Holt found that of seventy infants reared under similar conditions, 20 per cent. died on a diet of condensed milk, 9 per cent. on good boiled milk, but only 2·7 per cent. on the milk depôt product. These results are compared with those in

which educational methods by doctors and nurses alone are ultilised. The latter form of campaign resulted in a diminution of only 15 per cent. as compared with over 60 per cent. by milk depôts.

CHRISTOPHER ROLLESTON.

Statistical comparison of the mortality of breast-fed and bottle-fed infants (*'Amer. Journ. Dis. Child.,'* 1913, v, *p.* 234).—**W. H. Davis** finds that 68 per cent. of all babies in Boston between the ages of 2 weeks and 12 months are breast-fed. Of the deaths between these ages 74 per cent. were among bottle-fed infants. From these facts he concludes that a bottle-fed infant is six times more likely to die than the breast-fed. Other interesting facts are discussed which all tend to emphasise the great superiority of natural over artificial feeding. REGINALD MILLER.

The food requirements of children (*'Brit. Med. Journ.,'* 1913, I, *p.* 603).—**Chalmers Watson** discusses the amounts of protein and fat required by children and he shows how nutritious meals at small cost may be obtained. The essentials to be laid down for such meals are the following: (1) the food must be nourishing and ample in amount; (2) the food must be as cheap as possible consistent with (1); (3) the food must be of a nature that can be readily cooked with the limited facilities in a one- or two-roomed house; (4) in children, satisfactory rate of growth, increased vigour, and more efficient education must be the result. Specimen dietaries are given.

J. ALLAN.

Infant feeding (*'New York Med. Journ.,'* 1912, II, *p.* 993).—**L. Fischer** discusses most profitably some of the curious differences in results in feeding by laboratory milk and home modified milk, and refers to some of the difficulties met with in infant feeding. He emphasises in particular the mistake of trying to apply hard-and-fast rules for every case. His own rules could hardly be bettered: Use common-sense, avoid all fads, study the baby.

REGINALD MILLER.

The caloric requirements of bottle-fed infants (*'Journ. Amer. Med. Assoc.,'* 1912, LIX, *p.* 2306).—**R. H. Dennett** advocates regulating the food of artificially fed infants according to the number of calories required per kilogramme or pound of the body-weight. Tables are given of the caloric equivalents of milk and sugar in various dilutions, and the author finds that the average normal baby does well on 110 to 120 calories per kilogramme. Atrophic infants require food of much greater caloric value—130 to 170 calories according to the emaciation—though if there is a tendency to diarrhœa the higher values should not be given. T. R. WHIPHAM.

Long interval feeding of premature infants (*'Amer. Journ. Dis. Child.,'* 1912, IV, *p.* 391).—**J. C. Litzenberg,** like Czerny and Keller, holds that premature babies do best on long-interval feeding, and records fourteen cases, six of which are from Keller's clinique, in support of his contention. The digestive and other disturbances were less than in the short-interval cases, the increase in weight was as rapid as by any other method, and the infants slept better. The best interval seemed to be four hours.

J. D. ROLLESTON.

Practical points in the management of breast-feeding (*'Arch. of Ped.,'* 1913, XXX, *p.* 164).—**E. Pritchard** holds that in a large proportion

of cases now artificially fed, breast-feeding might be maintained were only this method more carefully studied and taught. He contrasts the amount of ingenuity lavished upon improvements in the artificial method of feeding and the comparative neglect of the study of the natural methods. Artificial methods are easier but by no means better than breast-feeding. He proceeds to deal with some of the details of breast-feeding; the importance of the meconium to the newborn infant, the harm which may accrue upon "careful" cleansing of the mouth, the great value of "test-feeds" for breast-fed infants are dealt with at length. The article concludes with a consideration of the results at "infant consultations" and some of the lessons to be drawn from them. REGINALD MILLER.

Use of polycarbohydrates in the diet of the young infant (*'Amer. Journ. Dis. Child.,'* 1912, IV, *p.* 89).—**J. M. Brady** gives his very favourable experience of feeding 170 babies under three months of age with a food containing various carbohydrates. The mixture is as follows: 1½ oz. by measure of barley flour is cooked in 16 oz. of water at least for 20 minutes down to 10 oz., and added to 20 oz. of skim, sweet or acidified milk. 1½ oz. by measure of cane-sugar and 1 oz. by measure of malted food containing dextrin and maltose are added. The carbohydrate content of the mixture would be represented by lactose 2·66, cane-sugar 1·30, maltose and dextrin 1·70, plus barley 2·25, which is partly dextrinised. This gives a total carbohydrate percentage of 7·91. One litre has a caloric value of 415. Beginning with a fat-free diet, the percentage of fat is gradually raised with the progress of the baby. REGINALD MILLER.

Use of malt sugar and high percentages of casein in infant feeding (*'Amer. Journ. Dis. Child.,'* 1911, II, *p.* 315).—**J. L. Morse** states that functional weakness of the intestine is the cause of diarrhœa, and depends upon the injurious effects of animal as distinct from human whey. Diarrhœa is kept up and increased by fermentation caused by the milk-sugar of the whey. If the milk-sugar be removed and casein substituted the diarrhœa is controlled. Leopold found that milk-sugar caused diarrhœa most easily, while dextrine-maltose mixtures were well borne. The author precipitated casein from one quart of milk, emulsified it with a pint of water, 3 per cent. of fat and a variable percentage of maltose, and gave it to eight babies with frequent green and offensive stools. He found that the stools quickly resumed their normal appearance, but the babies continued to lose weight. Therefore, as soon as the symptoms have disappeared, a normal diet should immediately be substituted. CHRISTOPHER ROLLESTON.

Protein milk as a corrective of digestive disturbances (*'Amer. Journ. Dis. Child.,'* 1913, V, *p.* 297).—**H. B. Wilcox** and **M. C. Hill** express some very definite opinions on the use and value of the protein milk of Finkelstein and Meyer. They regard it as essentially a therapeutic agent and not suitable for use as a continued diet. It is most suitable in children over three months, and is indicated in most forms of gastric and intestinal indigestion, particularly in acute intestinal infections. It should be made from skimmed milk, used without preliminary starvation, and should be withdrawn partially with the first signs of improvement, being replaced by suitable milk mixtures as fast as the patient's tolerance will admit. In contradiction of Finkelstein's teaching the authors do not regard

it as difficult to pass from protein to ordinary milk, nor do they object to using protein milk in combination with any plain milk mixture.

REGINALD MILLER.

Protein metabolism in infants fed on protein milk (*'Amer. Journ. Dis. Child.,'* 1913, v, *p.* 308).—**B. R. Hoobler** concludes that protein milk is not detrimental, but frequently supplies a sufficient amount to make up for previous protein depletion; that although low in caloric value, there is a retention of sufficient protein to prevent muscle waste even though the child may lose weight. On this diet, the stools contain less volatile, fatty and total acids; soap-formation is increased, less water is lost in the fæces and there is an improved retention of mineral salts. These chemical results may all occur in three or four days, and confirm the clinical observation that protein milk may be quickly discontinued and should be used as a corrective and not as a true food. REGINALD MILLER.

Researches on albuminous milk (*'Journ. de Méd. de Paris,'* 1912, XXXII, *p.* 496).—**E. Weill and G. Mouriquand.**—German physicians have successively attacked the different chemical ingredients of milk as the cause of infantile gastro-enteritis, some incriminating the fat, others the casein, others the mineral salts. Finkelstein and Meyer consider that the digestive troubles of the infant have always their basis in a functional insufficiency of the intestine, accentuated by fermentation. At the basis of these fermentations are carbohydrates, especially lactose: without carbohydrates no fermentation is possible. Casein cannot ferment in the absence of sugar. Their researches show that milk deprived of lactose has a most remarkable anti-fermentative power and leads rapidly to a cessation of digestive troubles. In order not to lessen the nutritive power of the milk, they replace the lactose by a less fermentable sugar, viz. maltose. This treatment has been tried by the authors on ten infants, with the result that nine died, and in the great majority the treatment accentuated the diarrhœa and vomiting and the weight slowly decreased. It was also tried on six healthy infants, four of whom steadily lost flesh, one remained stationary, and one increased 200 grammes. In most cases the stools became green and three cases suffered from vomiting. J. PORTER PARKINSON.

Effects of heated and superheated milk on the infant's nutrition (*'Arch. of Ped.,'* 1913, xxx, *p.* 122).—**H. L. Coit** gives a summary of the work of Dr. J. E. Lane-Claypon. The experimental work of Gerlach, Hitcher, Bang, Price and Doan is quoted to prove that no serious loss of nutritive value results by boiling the milk of the same species, that the salt content is of great importance, and in cases of failure with boiled milk the mineral salts should be added. Young animals fed on boiled milk of a suitable species seemed to thrive slightly better than those fed on similar raw milk, but after the experiment no striking difference was noted. In all cases both at and subsequent to the experiment, artificially fed animals were inferior to the breast-fed. Infants do just as well on boiled human milk as on unboiled, according to Thiemich. Finkelstein experimented on infants with boiled and unboiled milk of a foreign species and could detect no difference between the two classes. With regard to the value of human and cow's milk for babies, the following statements are made: (1) breast-fed babies have a higher average weight up to the 180th to the 220th day of life. Subsequently the difference disappears. (2) The difference is most marked in the first sixteen days of life. (3) After the first sixteen days the average

increase in body-weight is almost identical in breast- and bottle-fed. Unfortunately, the question of infantile scurvy receives no consideration in this summary. CHRISTOPHER ROLLESTON.

Boiled *v.* raw milk (*'Journ. Amer. Med. Assoc.,'* 1913, LX, *p.* 575).—**J. Brennemann** finds that raw milk forms large hard curds, whereas boiled milk produces fine soft curds. This occurs not only *in vitro*, but also apparently in the stomach. Experimentally, the writer found that when rennin is added to raw milk in a beaker at a proper temperature the milk quickly forms a dense hard coagulum, which separates rapidly and completely from the whey; whereas boiled milk under the same conditions coagulates slowly, separates less completely, and forms a soft, finely divisible curd, which differs but little from a thick liquid. Clinically, babies fed on raw cow's milk will at times vomit hard, leathery curds of enormous size, and if raw milk is injected by rectum and retained for a time, the next stool will contain typical hard curds. The movements of the stomach do not prevent the formation of large hard curds, as is evident from experiments *in vitro*, when the milk and rennin are constantly stirred or shaken. To determine the changes which ingested milk undergoes in the stomach, the author carried out a series of experiments in a healthy young adult who could promptly and with little effort empty his stomach by passing his finger into the throat. Since all the gastric ferments of the adult are present and active in the baby, it is not unfair to assume that in all probability the same relative reactions take place during early life. These experiments showed that after drinking a quart of milk in about five minutes the curds of raw milk were large and hard, while those of boiled milk were soft and easily divisible masses at the end of half an hour. In the case of pasteurised milk there was complete separation of curd and clear whey as with raw milk, the curds being not so massive but having all the characteristics of raw milk curds. To meet the objection that the infant spends more time over feeding, further experiments were made in which the subject slowly sipped a quart of raw milk in a period of thirty to forty-five minutes. After half an hour curds were either absent or very few in number. If only twenty minutes were occupied in drinking the milk a few fairly large curds were returned. This seems to show that drinking raw milk very slowly favours the formation of a smaller number of curds of such a size that they cannot be returned. Further evidence of this was obtained by sipping raw milk diluted with an equal quantity of water in forty-five minutes, when a large amount of curd was returned indistinguishable from that found after drinking a similar mixture in five minutes; whereas boiled whole milk sipped in the same time produced similar curds to those returned when it was consumed in five minutes. Raw milk diluted freely with water—or with barley-water—yielded small soft curds; while citrated milk (gr. ij—℥j) formed no curds at all. Condensed milk diluted 1:10 formed a fine soft precipitate. In practice the author finds that the hard curds of raw milk in infants' stools disappear when boiled milk is given, that diarrhœa and dyspeptic stools are cured by the change, and that vomiting is relieved. Colic and discomfort are among the most frequent symptoms arising from the use of raw milk and abate when a change is made to boiled or citrated milk, or, what is still more striking, to a condensed milk, either liquid or powdered. Whether improvement is due solely to the difference in coagulation or to some other difference between raw and boiled milk remains to be determined.

T. R. WHIPHAM.

The uses and abuses of proprietary foods in infant feeding (*'Brit. Med. Journ.,'* 1913, I, *p.* 872).—**H. C. Cameron** points out that proprietary foods have a distinct field of utility among a community which is not skilled in the difficult art of cookery for young children. It has to be remembered that most of these foods are composed preponderatingly of carbohydrate of one or other sort, and that therefore they have the drawback that they are liable in those infants whose carbohydrate tolerance is small to produce fermentative dyspepsia, diarrhœa, vomiting, colic and excoriation of the buttocks. He divides the foods into seven groups: (1) condensed milk with a high percentage of added cane-sugar; (2) condensed milk without added sugar; (3) dried milks; (4) dried milks with added malted sugar; (5) pure malted sugar; (6) foods consisting almost entirely of unaltered starch; (7) foods consisting of mixtures of unaltered starch and malted sugar. These are the classes of foods at our disposal, and by an intelligent use of them much can be accomplished. J. Allan.

Relation of the weight curve of the infant to the food (*'Amer. Journ. Obstet.,'* 1913, LXVII, *p.* 601).—**J. M. Brady** deals with the harm that may be done to an infant by prolonged administration of a diet which exceeds the maximum which can be tolerated. Summer diarrhœa he regards as due to the overstepping of the tolerance limit which has been lowered owing to excessive heat, though a bacillary diarrhœa also exists. The influence of various types of food stuffs on the weight curve is considered.
Reginald Miller.

The effect of moderately high temperature upon the infant (*'Arch. of Ped.,'* 1913, XXX, *p.* 191).—**J. H. Mason Knox, jun.,** has investigated the condition of infants in the homes of the poor in Baltimore during the summer months. He concludes that such babies can be kept well during summer heat of moderate intensity where they are fed on the breast or on pasteurised or scalded milk; in other words, that the large infant mortality prevailing each summer is to a large extent unnecessary, Unfortunately there was comparatively little sustained great heat during the periods in which the investigations took place. Reginald Miller.

Vomiting in infants from insufficient nourishment (*'Thèses de Paris,'* 1911–1912, *No.* 459).—**I. Camhi.**—Vomiting due to this cause usually begins at six weeks and is accompanied by dark green glairy stools, small in amount, but frequent and composed of intestinal mucus deeply tinged with bile. The condition results in prolonged arrest of growth. There is no prostration, the eyes are bright, the cry is shrill and not plaintive, the muscles preserve their tonus, and though the child may be much emaciated, the general condition is not very grave. Diagnosis is difficult. Other causes for the vomiting must be eliminated, such as overfeeding, toxicity of milk, anaphylaxis, acrophagy, pyloric spasm or stenosis. The thesis contains the histories of 30 cases, 11 of which are original (*vide* British Journal of Children's Diseases, 1911, VIII, *p.* 504).
J. D. Rolleston.

Dilatation of the stomach in infants due to under-feeding (*'La Clin. infant.,'* 1912, X, *p.* 647).—**G. Variot** and **Barret** have practised radioscopy as a routine method since 1909 at the Hospice des Enfants Assistés and noticed more or less marked dilatation of the stomach in a certain number of infants, who presented symptoms evidently caused by hypo-alimentation and especially vomiting after each feed. The authors report

the case of a boy, aged 8 weeks, weighing 2·725 kgrm.; the weight was normal at birth. At first he was suckled by the mother and vomited after each feed. He was then put on the bottle and after fifteen days was considered to have congenital hypertrophy of the pylorus. The feed had been reduced to 20 grm. of milk. The vomiting was intractable, and the general condition very serious. Radioscopy showed that the stomach contained only a small quantity of milk and was considerably dilated; on moving the child to right and left the upper level of the fluid in the stomach was seen to be displaced. There was a large volume of air. No marked peristalsis was seen. He was put on a ration of 75 grm. of homogenised milk, with 15 grm. of solution of citrate of soda 5 in 300. The vomiting diminished and disappeared at the end of four days. In three months his weight had increased to 4·325 kgm. notwithstanding an attack of whooping-cough. The authors consider that radioscopy is the only method of accurate observation of the stomach. Aërophagy is only a secondary incident. The real cause of the condition is inanition and loss of tonicity of the stomach. VINCENT DICKINSON.

The examination of the napkin (*'La Semana Med.,'* 1912, XIX, *p.* 1052). —**Acuña** gives a most detailed description of the systematic examination of the infant's motions under the headings of frequency, consistency, form and aspect, colour, smell, chemical reaction, microscopic and bacteriological examination. The stool of the breast-fed child has a simple fæcal flora, consisting chiefly of Tissier's bifid bacillus. Children fed on cow's milk have a varied fæcal flora—all kinds of aërobic and anaërobic microbes. Triboulet and Harvier's perchloride test is valuable for estimating the biliary and intestinal functions. The paper concludes with a description of the stool in some common disorders of infancy. M. D. EDER.

Summer diarrhœa; heat; humidity (*'Am. Journ. Dis. Child.,'* 1912, IV, *p.* 148).—**L. T. Royster** says that diarrhœa exists practically only in temperate regions of the globe, but is exceedingly rare in tropical and semi-tropical regions. Liefmann and Lindemann demonstrated that the death curve and the sick curve follow an almost exactly parallel line with the 2 p.m. temperature curve; but Royster points out that the temperature of the official weather bureau was always lower than at the street level; that the temperature within dwellings is ten degrees higher than outside, and that the maximum temperature of working-class dwellings is reached five to eleven hours later than the maximum point in the open. The statistics of various American cities are summarised, but owing to incomplete data are not convincing. The statistics of Norfolk (population 81,000) have been worked out in detail as regards humidity, temperature, and diarrhœa mortality. A high daily number of deaths is given as four, while two or three are the daily average. On May 27, 1907, three deaths occurred, the temperature being 79° and the humidity 90. This was followed by a drop in the humidity till June 1, when it rose to 95. On June 2 it was 87, with a temperature of only 57°; but on that day the deaths rose to four. In June, 1911, there were two days with four deaths, and several ranging from one to three, the humidity ranging from 61 to 83. The author attempts no conclusion, but expresses the belief that extended research will demonstrate a definite relationship between humidity and diarrhœa.

CHRISTOPHER ROLLESTON.

Triboulet's reaction and infantile diarrhœa (*'Gazz. med. ital.,'* 1912, LXIII, *p.* 467).—**M. Pater** draws attention to the utility of this method of

investigating the stools. If in a child of 3 or 4 months the acetic sublimate solution gives a yellow or pale green deposit and a clear supernatant liquid, alteration in the intestinal and hepatic function is indicated. If the deposit is dark green and the liquid turbid, there is disturbance of the intestinal function with increased secretion of bile. If the deposit is dingy green or red with a pink, turbid liquid, it is an indication that the liver and intestines are functionally normal. VINCENT DICKINSON.

Diarrhœa and erythema caused by return of menses in the nurse (*'La Clin. infant.,'* 1912, x, *p.* 584).—**G. Variot** reports the case of an infant who developed diarrhœa, with liquid green stools, followed by a slightly erosive erythema on the buttocks, gluteal folds, and posterior and inner surface of thighs. Hereditary syphilis was contra-indicated. Disturbances of lactation by the menstrual periods causing green stools and erythema are not infrequently met with, and deserve greater attention, since mistakes might lead to disastrous consequences.

VINCENT DICKINSON.

Anasarca in infants (*'Thèses de Paris,'* 1911–12, *No.* 372).—**S. U. M. Tava** records ten cases, one of which is original, in children aged from fifteen days to three years, and arrives at the following conclusions: Generalised œdema in the infant is in most cases due to marked disturbance of nutrition, which is often caused by prolonged intestinal affections. The œdema frequently appears after the administration of small quantities of sodium chloride in the treatment of severe gastro-enteritis or entero-colitis, or it may arise spontaneously. It seems to be independent of any important renal lesions and to be probably due to chloride retention. In three necropsies marked fatty change in the liver was found, in one case associated with cirrhosis. In children who present œdema or an abnormal increase of weight out of proportion to the general condition (pre-œdema of Widal), the introduction of sodium chloride into the organism should be avoided (*cf.* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1911, VII, *pp.* 422 and 501). J. D. ROLLESTON.

Alimentary fever (syndrome of Finkelstein) (*'Arch. de méd. des enf.,'* 1913, XVI, *p.* 1).—**F. Figueira** and **U. Lopes** give an account of Finkelstein's views on this subject, and an examination of several examples in their practice. Their conclusions agree with those of Finkelstein.

REGINALD MILLER.

Treatment.

The treatment of diphtheria by massive doses of antitoxin (*'Austral. Med. Journ.,'* 1912, I, *p.* 696).—**G. Leary** believes that in all severe naso-pharyngeal cases 50,000 units should be the initiatory dose, and if complicated with swollen glands, signs of rapid toxæmia and spreading membranes, 75,000 to 100,000 units. In infants the dose should be regulated by the number of days of invasion and not by age. If of forty-eight hours' duration, 24,000 units should be administered at once, and if complicated or over three days' 30,000 to 80,000 units. In uncomplicated cases of two or three days' standing 8000 to 12,000 units should suffice.

F. R. B. ATKINSON.

Serum treatment of tetanus after symptoms have developed (*'Journ. Amer. Med. Assoc.,'* 1913, LX, *p.* 363).—A girl, aged 14 years,

who had run a nail into her hallux a month previously was admitted to hospital with trismus, neck rigidity, rigidity of extremities, and pain on palpation of flanks and abdomen. Spasms were present. In the course of nineteen days she received 587,500 units of tetanus antitoxin. Recovery took place. Beyond a rash and rise of temperature no serum phenomena were noted.

J. D. Rolleston.

Serum treatment of pneumonia (*'Amer. Journ. Dis. Child.,'* 1912, iv, *p.* 383).—**R. G. Freeman** publishes observations on the use of pneumococcus serum (of the New York Board of Health) in the treatment of pneumonia in children. He concludes that the serum injections, while apparently affecting favourably the course of the disease in some cases, appear to have no result in others. Injection was in some cases followed by a marked remission of temperature, generally by a reduction in leucocytosis, and invariably by urticaria. The death-rate in the series (15 cases) was 40 per cent.; in a control series of a similar number treated without serum it was 47 per cent. The injected patients who recovered had a shorter average course of disease than the controls who survived.

Reginald Miller.

Parameningococcus meningitis cured by anti-parameningococcus serum (*'Bull. et Mém. Soc. Méd. Hôp. de Paris,'* 1913, xxxv, *p.* 411).—**H. Méry, H. Salin** and **A. Wilborts.**—A girl, aged 3 years, was admitted to hospital with symptoms of cerebro-spinal meningitis. The cerebro-spinal fluid was turbid and showed a few intracellular organisms resembling meningococci. Numerous injections of anti-meningococcic serum were followed by only slight and transitory improvement. The agglutination test showed that the organism was the parameningococcus. Rapid improvement followed injections of anti-parameningococcic serum, and finally recovery took place apart from deafness due to labyrinthine involvement.

J. D. Rolleston.

Cachectic form of parameningococcus cerebro-spinal meningitis cured by Dopter's serum (*'Bull. et Mém. Soc. Méd. Hôp. de Paris,'* 1913, xxxv, *p.* 423).—**H. Salin** and **J. Reilly.**—The patient was a boy, aged 3 years, in whom the disease ran its course in two stages. In the first stage the symptoms where those of ordinary cerebro-spinal meningitis. The general symptoms improved after treatment with meningococcic serum, but the meningeal symptoms persisted and the cerebro-spinal fluid was only slightly modified. In the second stage when the temperature was almost normal and the meningeal symptoms less marked symptoms of cachexia appeared, shown by emaciation, amyotrophy, cutaneous pigmentation, generalised adenopathy and torpor. The parameningococcus was then isolated from the cerebro-spinal fluid, Dopter's serum was used and rapid and complete recovery resulted.

J. D. Rolleston.

On the use of anti-whooping-cough serum of Klimenko (*'Journ. de méd. de Paris,'* 1913, xxxiii, *p.* 366).—**G. Rosenthal.**—Bordet and Gengou found in the sputum of whooping-cough cases a small ovoid organism varying in length, pale staining by Kühne's blue, negative to Gram. The first cultures are difficult to grow on any medium. The second culture grows well and forms an opaque, white, fatty-looking layer. This microbe is agglutinated by serum of children recently suffering from whooping-cough.

It produces nasal catarrh and cough in puppies and monkeys. Klimenko has tried in vain to obtain an active toxin and concludes that endotoxins alone are present. The serum of animals immunised by injections of cultures has undoubted power; it makes innocuous a lethal dose of bacilli injected into the peritoneal cavity of the guinea-pig. It has been used hypodermically and rectally in children, and the results show that it does not abort the attack, but diminishes the violence of the cough markedly and appears to lessen the frequency of complications.

J. Porter Parkinson.

Vaccine treatment of whooping-cough (*'New York Med. Journ.,'* 1913, I, *p.* 823).—**S. M. Wilson** has treated a number of cases from the orphanage at Philadelphia with a vaccine. In 24 cases not in the early stage to whom 40 million killed organisms were given and two days later a similar injection, the paroxysms diminished in frequency and severity. In early stages 20 million organisms were given every other day for about three weeks. If the systemic reaction to the injections was feeble cacodylate of sodium, 0·03 grm., was given with the vaccine. The author considers the treatment was successful, and that infection ceased when the paroxysms of coughing stopped.

J. Porter Parkinson.

Vaccine treatment of erysipelas (*'Med. Record,'* 1913, I, *p.* 573).—**E. M. Sill** records ten cases in infants aged from eight days to seventeen months. All but one aged three weeks recovered. Seven were treated with streptococcus vaccine alone, one with a combined vaccine of streptococci, staphylococci and *B. coli*, and two with Schæfer's mixed phylacogen.

J. D. Rolleston.

The complement-fixation test in the management of gonococcus vulvo-vaginitis (*'Amer. Journ. Dis. Child.,'* 1913, V, *p.* 313).—**G. G. Smith** has applied the gonococcal complement-fixation test to 25 cases of vulvo-vaginitis, with a view to test its value as a criterion of cure. The ages of the children ranged from 3 to 12 years and gonococci had been present in all of them. Of the 25 cases, 15 gave positive and 10 negative reactions. The test was positive in 11 out of 12 clinically positive cases, and in 4 cases in which the evidence was inconclusive. It was negative in 3 cases in which other evidence of cure was insufficient, but in 7 other cases the clinical evidence was corroborative. The author concludes that the test is of considerable value in establishing evidence of a cure.

C. F. Marshall.

Salvarsan and neo-salvarsan in congenital syphilis (*'Arch. f. Kinderheilk.,'* 1912, LIX, *p.* 252).—**Dünzelmann** reports the results of treatment of 37 cases of congenital syphilis by intravenous injection of salvarsan and neo-salvarsan. There were 12 deaths: 3 from pneumonia; 3 from empyema; 3 were severe cases, and 2 died suddenly with convulsions, one on the next day and one on the eighth day. Whether salvarsan caused death in the last six cases is said to be doubtful. Of the surviving cases 12 were tested several times with the Wassermann reaction. This was positive in 6, weakly positive in 1 and negative in 5. The doses given were 0·06 to 0·14 grm. salvarsan, and 0·1 to 0·2 grm. neo-salvarsan. Injections were made into the veins of the head. The author concludes that combined treatment with mercury is better than salvarsan or neo-salvarsan alone.

C. F. Marshall.

On the subsequent history of my cases of syphilis in children treated with salvarsan (*'Arch. f. Kinderheilk.,'* 1913, *Baginsky Festschrift, p.* 107).—**J. von Bokay** has been able to keep under constant observation ten of the twenty-six cases previously recorded by him (*vide* British Journal of Children's Diseases, 1912, ix, *p.* 47). Six cases of congenital syphilis have had a recurrence of symptoms which appeared after an interval ranging from three and a half to eleven and a half months. In every case the symptoms were mild and readily yielded to calomel internally. Permanent recovery occurred in four cases, two of congenital and two of acquired syphilis, which had been kept under observation for a period varying in each case from twenty-four to twenty-nine months. The Wassermann reaction in these four cases which had been positive at first is now negative. Owing to the relatively large number of recurrences Bokay combines mercurial treatment with salvarsan. J. D. Rolleston.

Heliotherapy in tubercular arthritis (*'Paris méd.,'* 1912–13, i, *p.* 469).—**L. Jaubert** proceeds as follows: For the first eight days no treatment is instituted. At the end of this time, the first day three *séances* are given of five minutes on the feet and the lower part of the legs. The day after the sun's rays are applied for ten minutes to the same parts and five minutes to the thighs; the third day fifteen minutes to the legs, ten minutes to the thighs and five minutes to the trunk, and this is gradually increased, and the whole body submitted to the sun's rays. If erythema supervenes the treatment is stopped for two or three days. The whole treatment lasts any time up to a month. The treatment is contra-indicated if the heart is affected with bad compensation. The author has seen good results from this treatment.
F. R. B. Atkinson.

The treatment of infantile anæmias (*'Paris Méd.,'* 1911, ii, *p.* 138).—**Léon Tixier** considers the treatment of simple and grave anæmias. *Simple anæmia:* The common form of moderate severity. Good food, fresh air and good surroundings. The author recommends the protoxalate of iron in divided doses amounting to 0 gr. 10, 15, or 20 each day. If the stools become black one to two teaspoonfuls of lemon-juice should be given half an hour after each meal containing the iron. Fowler's solution often causes digestive trouble and is best avoided. Bone-marrow, fresh, 10 to 20 grm. *per diem*, often acts efficaciously. The cause should always be sought for. In anæmias caused by gastric troubles the latter must be first attended to before the employment of iron. In syphilitic anæmia the author recommends a combination of mercury and iron, the former to be given intramuscularly: 10 injections, one a day, of 0·005 of benzoate of mercury or a mixture of protoxalate of iron and biniodide of mercury. In tuberculous anæmia the author gives Fowler's solution or the bioxide of manganese.
F. R. B. Atkinson.

Normal human blood-serum in hæmorrhagic diseases of infants and children (*'New York Med. Journ.,'* 1913, i, *p.* 125).—**J. E. Welch** relates three examples out of thirty-five cases saved by the injection of normal human blood-serum. One was a girl, aged seven years, with nose-bleeding and subcutaneous hæmorrhages, who was given three injections of the serum in doses of 37 c.c., 43 c.c. and 30 c.c. respectively at intervals of five days. The bleeding, which was severe, ceased after the first injection. Another was an infant who twenty hours after birth began to pass large bloody stools and

became extremely anæmic. Four hours after the first hæmorrhage the serum was injected and was followed by other injections till 101 c.c. had been given in twenty-four hours, by which time the bleeding ceased. For three days more serum was administered till 226 c.c. had been given. The child recovered rapidly and on the fourth day was able to take the breast quite naturally. The third case was an infant who became jaundiced the third day after birth and soon became comatose with cyanosis and tense fontanelle, rigidity of the neck and twitching of the limbs. Lumbar puncture withdrew $\frac{1}{2}$ ounce of nearly pure blood which reduced the tension of the fontanelles. The condition got worse, till 60 hours later 30 c.c. of serum were given subcutaneously and in another six hours a similar dose. In twenty-four hours the twitching had quite disappeared and lumbar puncture showed that the hæmorrhage had ceased. For five days the serum was administered till 630 c.c. had been given in all. Improvement was continuous, the weight increased and the child completely recovered. The writer attributes these bleedings to auto-intoxication from excessive growth of pathogenic bacteria in the intestinal tract with absorption of toxins.

J. Porter Parkinson.

Hæmorrhagic disease of the newborn treated by horse-serum (*'Journ. Amer. Med. Assoc.,'* 1913, lx, *p.* 1154).—**W. B. Jennings** records another instance of the efficacy of horse-serum in the treatment of hæmorrhage in the newborn. The infant was a female whose mother was said to have suffered from pernicious anæmia and valvular disease of the heart. On the fourth day the child vomited bright blood and passed blood *per rectum* to the extent of 6 or 8 drachms. On the following day a teaspoonful was spat up and about 1 oz. was lost by the rectum. Two doses of 7 and 8 c.c. respectively of normal horse-serum were given subcutaneously. On the next day the motions were tar-like and the urine was blood-stained. An urticarial rash appeared, but there was no more hæmorrhage. The child made a good recovery, the temperature, except at the beginning, being subnormal throughout.

T. R. Whipham.

Treatment of familial hæmophilia and purpura by injection of Witte's peptone (*'Arch. mal. du cœur,'* 1913, vi, *p.* 397).—**P. Nobécourt and L. Tixier.**—In the case of hæmophilia, a boy, aged 10 years, in whom injections of horse-serum had been unsuccessful, repeated injections of 5 per cent. Witte's peptone produced marked improvement, the tendency to hæmorrhage disappeared almost completely, the child put on flesh, and coagulation time was much more rapid than before. In six cases of severe purpura the results were as follows: In two children, aged 5 and 9 years, recovery was rapid after four or five injections, in two aged 2 and 10 years several series of injections were required, and in two aged 6 and 11 years no effect was obtained.

J. D. Rolleston.

Remarkable effects of ipecacuanha in small doses in certain obstinate digestive troubles in infancy (*'Journ. de Méd. de Bordeaux,'* 1913, xliii, *p.* 211).—**R. Saint-Philippe** finds that there is a disease existing in infants from 18 months to 4 years, exhibiting the following symptoms: constipation, intestinal atony, loss of appetite, dyspepsia, apepsia, anæmia, malnutrition and emaciation. It may be primary or secondary, and gives rise to a syndrome characterised by anorexia, fæcal stasis and evacuation of muco-membranous material. It is best treated by ipecacuanha in small and gradually increasing doses.

F. R. B. Atkinson.

Thyroid medication in children (*'New York Med. Journ.,'* 1913, I, *p.* 870).—**M. B. Gordon** speaks of "hypoplastic" cases where there is a marked deficiency in height and weight, persistent low temperature, delayed puberty, high-arched palate, delayed epiphyseal development, enlarged tonsils, adenoids and dulled mental capacity, which may be much improved or made normal by thyroid treatment. In Mongolian idiocy, except when associated with thyroid deficiency, thyroid treatment has no effect. In some cases of enuresis the treatment has been found beneficial. It is also useful in skin conditions, such as sclerosis neonatorum, psoriaris, scleroderma and eczema. In addition to its physiological action, thyroid acts through the arsenic and iodine it contains, and arsenic may be added to it to increase its efficacy. Its prolonged use may cause diarrhœa, salivation, increased perspiration and lowering of blood-pressure, with increased frequency of heart-beat and skin changes akin to those of myxœdema. The dose depends upon the individual susceptibility of the child and not upon age, weight, etc.

J. Porter Parkinson.

Value of massage in treatment of various disorders in children (*'Am. Journ. Med. Sci.,'* 1913, CXLV, *p.* 504).—**J. Phillips** alludes to the good results obtained by MacPhail (*v.* British Journal of Children's Diseases, 1912, IX, *p.* 404), and relates his own experience. The best results were obtained in cases of malnutrition with loss of appetite, weak flabby muscles and distinct pallor. Great benefit was also obtained in rickets, in poliomyelitis after the acute stage, in the prevention of contractures in polio-encephalitis and other diseases of the upper neuron, in the treatment of nervous children, and rheumatic patients with cardiac lesions. Three illustrative cases are recorded in children, aged 10 months, 22 months and 5½ years respectively.

J. D. Rolleston.

Dietetic treatment of convulsions and allied conditions occurring in infants (*'Amer. Journ. Dis. Child.,'* 1913, V, III, *p.* 205).—**C. G. Grulee** in the course of a long article deals with the dietetic cause of spasmophilia in infants. He regards with Finkelstein the whey of milk as the exciting cause, and has pursued many investigations in an endeavour to trace the constituents of the whey, which should be looked upon as the source of the danger. In particular he tested the conclusions of Reiss that calcium and magnesium decrease, and sodium and potassium increase, nervous irritability. Experiments on thyroidectomised dogs did not lend any decided support to this view, and observations on infants with tetany, although confirming the excitant action of whey, did not confirm the hypothesis that the increased electrical irritability in spasmophilia is the result of a disturbance of calcium and sodium equilibrium.

Reginald Miller.

Dietetic treatment of infantile tetany (*'Arch. of Ped.,'* 1912, XXIX, *p.* 24).—**C. G. Grulee** records four cases of tetany in infants which he considers support Finkelstein's view, who, in speaking of infantile tetany, says, "probably the disturbance has nothing to do with the casein, the milk-fat, or the sugar, the addition of either of which substances to a mildly irritating diet has no disadvantageous effects, but the whey has the same action as cow's milk, so that probably some substance dissolved in it is involved." In his four cases food containing no whey proved to be non-irritating, but with striking regularity there was an increase in the tetany

when whey was added. After summarising much of the recent work on calcium metabolism and parathyroid action in connection with tetany, he thinks that it is to the derangement of calcium metabolism that tetany is most likely due. "If tetany is due to a lack of calcium in the organism, and if tetanic conditions improve on a food which is low in calcium, then we may only conclude that the calcium which is in the food is much better utilised, and that the calcium in the body is retained, and that, in other words, whey contains some constituents, about which we know nothing, which cause a removal of the calcium from the system." He concludes by saying that removal of whey from the food renders it non-irritating in these cases, but it must be supplemented with sedatives in order to bring about a proper reduction of the "spasmophilic condition."

FREDERICK LANGMEAD.

Review.

THE BRITISH JOURNAL OF SURGERY. Issued quarterly. Subscription 25s. net per annum. Pp. 153, 67 figures. Bristol: John Wright & Sons.

IN welcoming this new quarterly, which is brought out by an editorial committee of representative metropolitan and provincial surgeons, under the chairmanship of Sir Berkeley Moynihan, we may quote the intention of the promotors, as voiced in Sir Rickman Godlee's foreword, "that it shall include the best, and as far as may be, only the best, British surgical work of the day." A brief account with a portrait of Lord Lister, which appropriately forms the frontispiece, is followed by a number of original articles, two critical reviews, accounts of the clinics of Sir W. Macewen and Prof. Tuffier of Paris, shorter articles on instructive mistakes and on rare or obscure cases, accounts of new instruments and appliances, and lastly by reviews of books. The original articles are of a high order; Mr. David Newman writes authoritatively on renal varix and hyperæmia as causes of symptomless renal hæmaturia. In his scholarly article on gall-stones Mr. D'Arcy Power pleads for earlier operation, and points out that removal of renal calculi is never delayed in the way that cholecystotomy for gall-stones is. Mr. Sampson Handley writes of Sir Henry Butlin's somewhat neglected operation of marginal resection of the tongue, and pays a graceful tribute to the memory of this distinguished surgeon. From a study of 402 specimens Mr. Morriston Davies comes to the conclusion that apical pulmonary tuberculosis is not favoured by abnormal shortness or ossification of the first costal cartilage, and that the balance of evidence is against the probability that the operation for division of the first costal cartilage in apical tuberculosis will produce any material improvement. Mr. Robert Jones and Mr. Alwyn Smith, of Winnipeg, contribute a copiously illustrated article on rupture of the crucial ligaments of the knee and on fractures of the spine of the tibia. There is an admirable critical review on the nature of surgical shock by Mr. Rendle Short. The journal is full of interesting matter, is very well printed and beautifully illustrated.